



TESTED: 12" POWERBOOK P.46

Apple's new mini-laptop—reviewed, rated, and attacked by a pit bull.



WHO NEEDS iDVD? P.53

Burn DVDs without an Apple SuperDrive. Finally.

80
APR
2003

MacAddict

A BETTER MACHINE. A BETTER MAGAZINE.

ULTIMATE HARDWARE TOOL KIT

Upgrades

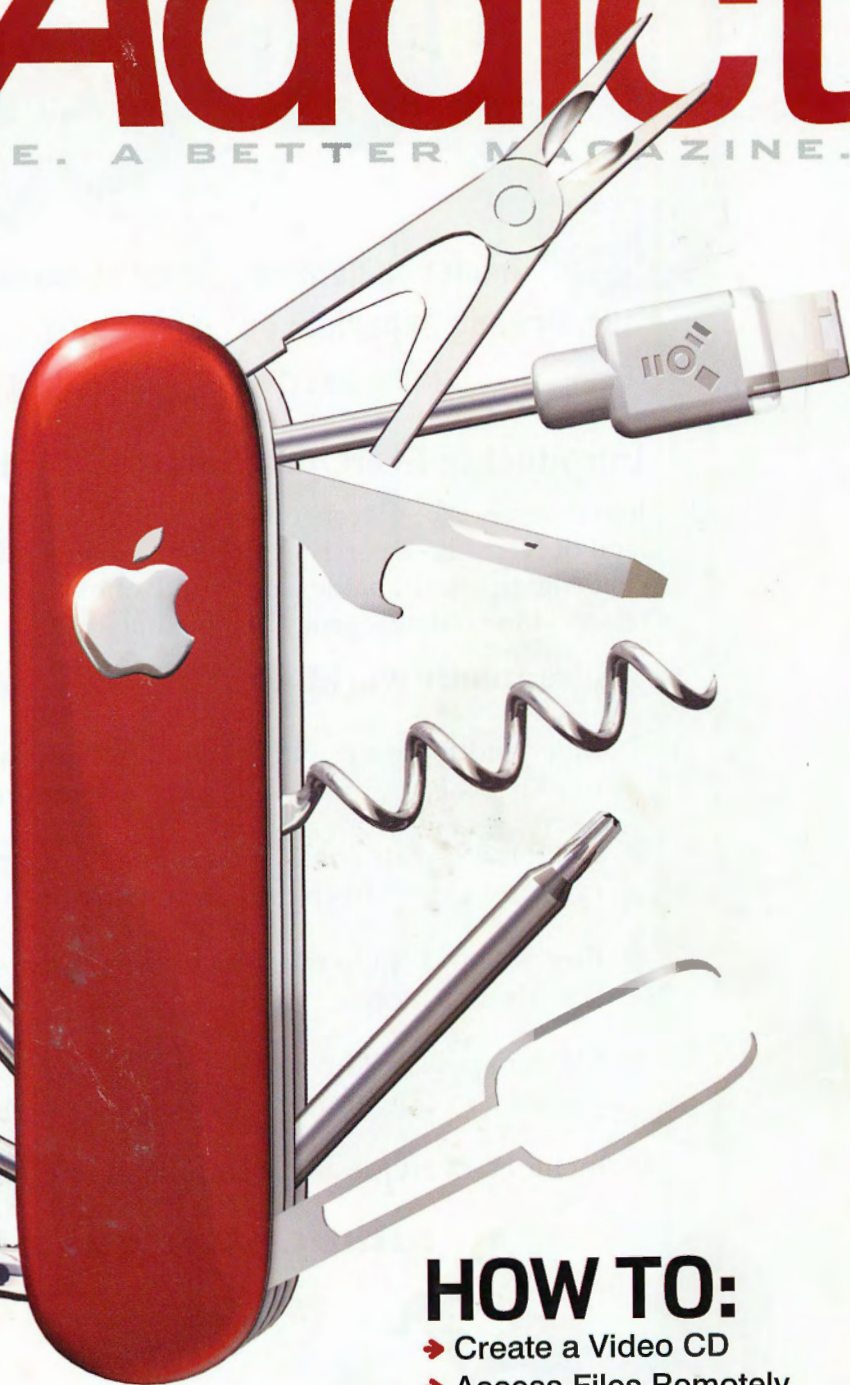
Give your trusty old Mac new powers for a lot less cash than you thought.

Repairs

We show you what to do when disaster strikes your Mac.

Storage

It's a whole new ball game, from FireWire 800 to internal RAIDs.



5TH ANNUAL PRANK-A-PALOOZA

April Fool! 14 tricks guaranteed to get you fired, slugged, or banished to the couch.

HOW TO:

- Create a Video CD
- Access Files Remotely
- Add Shadows to Images
- Personalize Form Letters

REVIEWED:

◀ Olympus C-730 Ultra Zoom, Keynote, HP deskjet 450cbi, Big Disk 500GB, Virtual PC 6, Tom Clancy's Ghost Recon, Peak 3.2, HomePlug Ethernet Bridge, Zip 750MB, F1 Championship Season 2000, Freedom Force, and much more...



\$7.99US \$9.99CAN



04>

EVERQUEST®

Immerse yourself in what hundreds of thousands have already experienced...a land with no limits to the imagination, where excitement and myth reign supreme.

Introducing EverQuest® for the Macintosh!

Join thousands of players online as you design and build a hero in the mystical land of Norrath - a persistent, role-playing world alive with adventure. Conquer challenging quests, battle a multitude of monsters, and interact with thousands of others in the online journey of a lifetime.

You're in our world now!®

- ⊗ Meet and team up with players from all over the world in massively multiplayer online adventures.
- ⊗ Customize your character's name, face, armor, abilities, race and class - from barbarian warrior to elfin wizard.
- ⊗ Buy, sell and trade magical swords, spears, armor, shields and more.
- ⊗ Master spells, combat skills and special abilities, growing in power as your character progresses.
- ⊗ Includes EverQuest Classic and all four expansions!



www.everquest.com



JOIN THE MASSIVELY MULTIPLAYER MACINTOSH ONLINE REVOLUTION!



SOE
SONY ONLINE
ENTERTAINMENT

INTERNET CONNECTION REQUIRED
ADDITIONAL SUBSCRIPTION FEES REQUIRED



BLOOD & GORE
VIOLENCE
SUGGESTIVE THEMES

Game Experience May
Change During Online Play

EverQuest, You're in Our World Now!, The Ruins of Kunark, and The Scars of Velious are registered trademarks and The Shadows of Lucin and The Planes of Power are trademarks of Sony Computer Entertainment America Inc. in the United States and/or other countries. SOE and the SOE logo are registered trademarks of Sony Online Entertainment Inc. The ratings icon is a registered trademark of the Interactive Digital Software Association. Mac and the Mac logo are trademarks of Apple Computer, Inc., registered in the U.S. and other countries. ©2002 Sony Computer Entertainment America Inc. All other trademarks and trade names are properties of their respective owners. All rights reserved.



New!
**Built for speed
and connectivity!**

Supporting the
Mac aficionado
since 1987.

We know Mac!

Rely on Mac Warehouse for:

- **Our Experience**
15 years, 34 million orders fulfilled
- **Our Knowledge**
You have a question, we have the answer
- **Our Service**
We're open for business whenever you call

Oh, and our 24/7 Tech Support is **FREE**
for the lifetime of your product.

New! Apple iMac® G4
with 17-inch display and
1.0GHz G4 processor



Authorized Reseller

macware

authorized reseller

EPSON®



QUARK™

SONY™

**Your #1 source for
everything Mac!**

**Super
Compact!**

The new 12-inch PowerBook® G4 is the smallest — and most affordable — PowerBook ever!

**Super
Performance!**

This portable whiz kid features a powerful G4 processor running at 867MHz PLUS a 40GB Ultra ATA/100 hard drive PLUS NVIDIA® GeForce4 420 GO™ graphics processor!

**Super
Connected!**

Built-in AirPort® Extreme delivers the next generation of wireless technology PLUS extreme backward compatibility and built-in Bluetooth™ support!



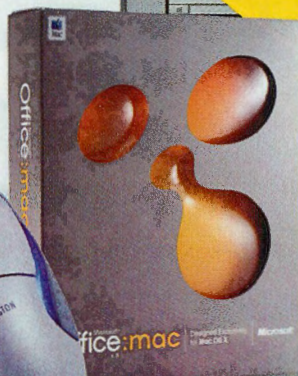
New! 12-inch active-matrix display!

Super Deal!

Mac Warehouse has combined the 12-inch PowerBook PLUS Microsoft® Office for Mac PLUS a Kensington Mouse PLUS an extra Titanium battery so you get the ultimate productivity at a great price — only **\$1999.95** after mail-in rebate. Ask for item #BND5091.

**New! 12-inch
PowerBook G4**

**3 Button
Mouse-
in-a-Box®
Optical
Mouse**



**Microsoft®
Office v.X for Mac**

*Price AFTER Mac Warehouse's \$129.95 mail-in rebate. Price before rebate: \$2129.90. Ask for item #BND5091. Bundle includes 12-inch PowerBook G4 with 867MHz PowerPC® G4 processor, extra Battery, Microsoft Office v.X (in promotional packaging) and Kensington 3 Button Mouse-in-a-Box® Optical Mouse. Rebate coupon available at www.warehouse.com/rebate/macwarehouse. Offer expires 4/5/03 or while supplies last.

house.com

MAC

WAREHOUSE
A MICROWAREHOUSE Company

1-800-981-9192

For all Canadian inquiries and
orders please call 1-877-375-4210



**YOU CAN'T KILL
WHAT YOU CAN'T CATCH**

SPY HUNTER®



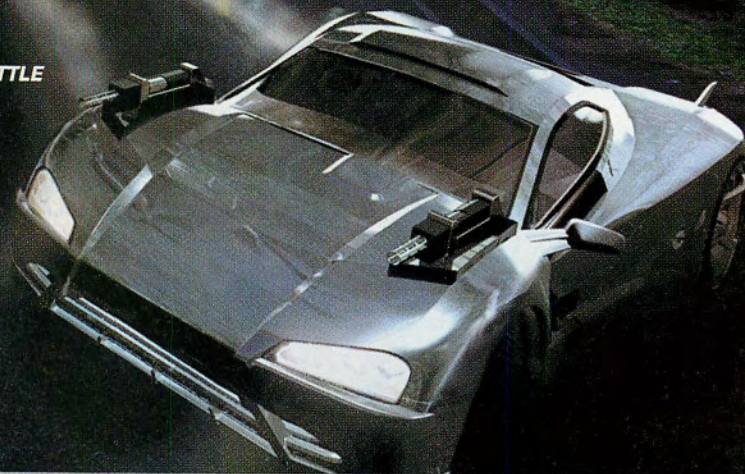
**ULTRA-REALISTIC 3D GRAPHICS AND THE ONLY VEHICLE
CAPABLE OF MORPHING INTO A BOAT, JET SKI OR MOTORCYCLE.**



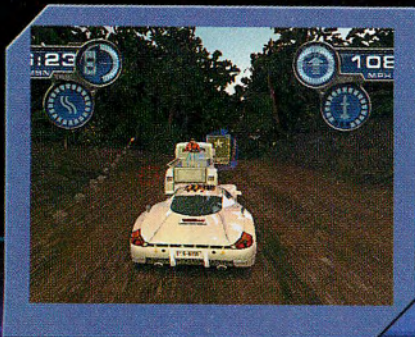
**HORDES OF ENEMIES PURSUE AS YOU BATTLE
TO ACCOMPLISH YOUR MISSIONS.**



**EXPLOSIVE WEAPONRY COMBINED
WITH INTENSE SPEED.**



for more information, visit www.aspyr.com



Violence



MIDWAY



ASPYR

Spy Hunter © 2003 Midway Amusement Games, LLC. SPY HUNTER, MIDWAY and the Midway logos are trademarks of Midway Amusement Games, LLC. Used by permission. The Aspyr logo is a trademark of Aspyr Media, Inc. Mac and the Mac logo are trademarks of Apple Computer, Inc., registered in the U.S. and other countries. All other trademarks are properties of their respective owners.



MacAddict's Ultimate Hardware Tool Kit

Your favorite apps make you productive—but what makes *them* productive is your Mac. This month we devote 18 pages to *its* needs, with oodles of info on how to upgrade it, add the right storage, and repair it when it's feelin' low.

18 Supercharge Your Mac

If your old Mac can't keep up with the latest apps, don't downgrade it to second-class status—upgrade it! You'll be amazed at how much power a little money can buy.

by Todd Stauffer

27 Repair 101

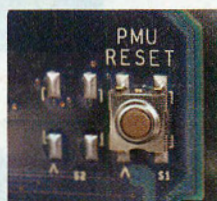
It's happened to all of us: Your Mac won't start up. Your hard drive's gone south—with all your data. Your monitor looks as muddy as a pig farm. Here are the quick fixes every Mac addict should know.

by Todd Stauffer

30 All About Storage

Is FireWire 800 really twice as fast? Is RAID really worth it? Why do DVD burners kinda suck? If you're foraging for storage, let us walk you through your options: big, small, inside, and out.

by Jeffy Milstead



38 April Fools'

It's our 5th Annual Prank-a-Palooza! This year, we've got some doozies: Make your victim's Mac whisper scary messages. Terrify your favorite Unix-phobe. Make a statement about your Celine-loving friend's execrable music taste. And more.

by Jack Miller

HOW TO

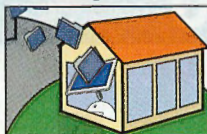
64 Ask Us

New: *Pop Quiz*, a set of quick Q&As you can skim on the bus, in the elevator, or on the can. Plus, printing to shared Windows printers, creating multisession CDs, and getting Unix info out of Mac OS X.

66 Share Files Remotely

Prone to leaving crucial files at home or the office? Learn how to set up your Mac to grab files remotely from any location.

by Carol S. Holzberg and Kris Fong



70 Personalize Your Form Letters

Peppering form letters with personal references may be enough to keep clients reading.

by Kris Fong and Rod Lawton



72 Create Photo-Realistic Shadows

Groundhogs aren't the only things that cast a shadow; masked-out subjects should, too. Keep your photo composites looking real by creating a digital shadow.

by Kris Fong



74 Create a Video CD

Wanna share your iMovie creations with folks who don't have a computer? Create a VCD of your work that can play in a home DVD player for easy boob-tubing.

by Robert Capps



APRIL 2003
NO. 80 • VOLUME 8 • ISSUE 4

ON THE COVER



Cover illustration by
Oliver Wolfson.

EVERY MONTH

10 Editors' Page

After years of uncertainty, Apple's future is now 100 percent secure—we're takin' over.

12 Get Info

Free software is falling from Linux and Unix heaven—find out how to get your share. Plus, Apple slashes prices and boosts performance, color laser printers are now affordable, shareware adds OS 9 file and folder labels to OS X, and much more.

45 Reviews

- 46 **12-Inch PowerBook G4** notebook
- 59 **Artisan Color Reference System** 21-inch CRT with color calibrator
- 58 **Big Disk** 500GB FireWire hard drive
- 52 **C-730 Ultra Zoom** 3.2-megapixel digital camera
- 61 **CopyPaste-X** Clipboard enhancer
- 54 **deskjet 450cbi** portable inkjet printer
- 53 **Devedeon** external DVD-R/CD-RW drive
- 60 **F1 Championship Season 2000** racing game
- 60 **Freedom Force** role-playing game
- 61 **HomePlug Ethernet Bridge** network bridge
- 48 **Keynote** presentation software
- 49 **Peak 3.2** audio-editing software
- 55 **Storyboard Quick 4** storyboarding software
- 61 **SuperScrubber** disk-sanitizing utility
- 50 **Tom Clancy's Ghost Recon** strategy-based first-person shooter
- 56 **UZR 3D Professional 1.4** image-based 3D-modeling software
- 51 **Virtual PC 6 with Windows XP Home Edition** PC-emulation software
- 58 **Zip 750MB FireWire External Drive** removable-media drive

62 The Hot List

The best of the best from recent reviews. If the editors of *MacAddict* went shopping, this is what we'd buy.

94 Log Out

94 Letters

Big brother SHHes little brother's iBook. Some of you want games gruffer. Others want games gone. A star is born in the *MacAddict* staff movie, and the father of the Power Mac takes us to school.

95 Contest

Show us your true colors and win an Epson Stylus Photo 960 printer.

96 Shut Down

The glorious new 17-inch PowerBook's way-cool ambient light sensor technology had some tough company in the Apple lab—check out some of the sensors that didn't quite make the cut.



Give us this day our milk and cat food.



Less is more—way more.



So will the next zoom go to 11?



Thank God it's fry-day!



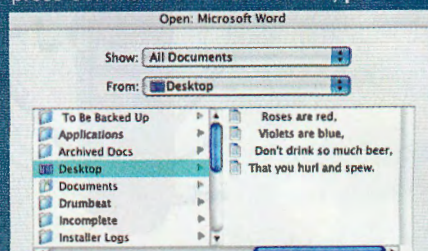
Whoa! You really are happy to see me!

QUICK TIPS

...from this month's issue.

GET TO YOUR DESKTOP, FAST

To instantly jump to your Desktop when you're in any Open or Save dialog, simply press Command-D. **From Ask Us, p64**



LISTEN TO YOUR MAC

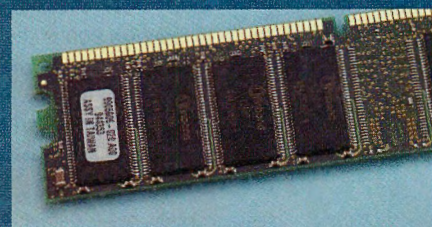
If your Mac beeps at you when it's trying to start up, there's a good chance that a RAM module hasn't been properly installed or has worked its way loose.

From "Repair 101," p27

BALANCE YOUR RAM

SDRAM has speed specs: 3-2-3 SDRAM is the slowest, while 2-2-2 is the fastest. If you can, buy all 2-2-2 SDRAM, since mixing and matching means the slowest speed will prevail.

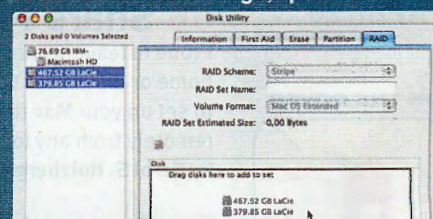
From "Supercharge Your Mac," p18



GIVE RAID A CHANCE

If you're setting up a dual-drive software FireWire RAID and you want to get the fastest speed possible, plug each drive into its own FireWire port on your Mac.

From "All About Storage," p30



DON'T USE CRACKED CDS

The speed at the edge of a CD in an ultra-high-speed drive can reach 150 to 200 mph. An old CD that has microscopic cracks spinning it at that speed can fly apart, destroying the drive along with it.

From "All About Storage," p30



SONY®

BEFORE THE FINAL CUT, YOU NEED SONY'S ROUGH CUT.™

The ecstasy of computer-based non-linear editing applications is matched only by the agony of finishing a project and cleaning out your hard drive, then getting hit with additional changes. Instead of wasting hours recreating the job from scratch, save and retrieve it with Sony's new Rough Cut™ Advanced Video Editing Storage solution.

The Rough Cut system consolidates entire projects including video and audio clips, EDLs, graphics, animations – even scripts and contracts. Sony provides everything you need: a compact Sony AIT-2 backup drive, a supply of high-density Sony AIT tapes to get you started, a cable for computer connection and **MEZZO** A/V editing backup software. Mezzo software runs in the background, so you can save as you go. The Rough Cut storage system works with Avid® Media Composer®, Adobe® Premiere®, Apple® Final Cut Pro®, and other applications running on Macintosh® OS X v10.2 and earlier versions to OS 9.

Sony's Rough Cut system can save countless hours of rework. It saves money by boosting productivity. And when crunch time comes, it can save the day.

**Rough
Cut™**
Advanced Video Editing Storage



FOR MORE INFORMATION, VISIT WWW.SONY.COM/ROUGH CUT

AITA/V

AITDATASTORAGE

AITMEDICAL

AITGOVERNMENT

AITSECURITY

©2002 Sony Electronics Inc. All rights reserved. Reproduction in whole or in part without written permission is prohibited. Features and specifications are subject to change without notice. Sony, the AIT logo, and Rough Cut are trademarks of Sony. Mezzo is a trademark of Grey Matter Response Inc. All other trademarks are the property of their respective owners. There is no express or implied endorsement or association between Sony and any of the software providers listed.



theDisc

DO IT ALL

With 81 apps on this month's Disc, there's something for everyone. Into music? Try the demo of the popular audio app, Peak. Games? Burn rubber and your free time with F1 Championship. If you'd rather be productive, check out CopyPaste, the Ahhhhold of Clipboards.

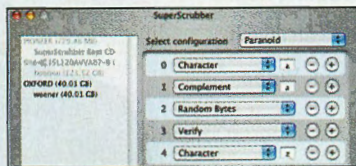
UZR 3D Pro demo

Wouldn't it be cool to be able to create a digital 3D model of anything you can take pictures of? That's pretty much the deal with UZR 3D Pro—and the best part is, all you need is a digital camera or Webcam.



SuperScrubber demo

We're not paranoid—not very, anyway—but we'd feel a bit safer if we knew that when we erased a sensitive file, it was *really* gone. Solid gone. Gone-enough-for-the-military gone. Well, SuperScrubber'll do that.



Mindless Entertainment

Sometimes it's nice to just turn off your mind, relax, and float downstream. These gentle time-wasters can help.



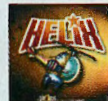
You can't resist a game as cute as the Breakout takeoff, Bongo Boogie.



If you've ever enjoyed Tetris—and who hasn't?—you're ripe for Descender.



The addictive video game that started it all is back—and beefier—in Pongjourney.



Helix: Destroying evil eyeballs and headless hooligans has never been so relaxing.

theList

AUDIO & MUSIC

Frogg 1.0.1
iSpeak It 1.1
Jasmine (OS 9) 1.5.6
Jasmine (OS X) 1.5.6
MakingMusic 1.3
MuSing 1.0.6
NMP3 Ripper 0.5.7
Obelisk 3.0
Peak (OS 9) 3.2 trial
Peak (OS X) 3.2 trial
Peak 3 docs and tutorials
Peak G4 (OS X) 3.2 trial
PodManager 1.4.1
PodWorks 1.2.1
Sound Byte (Classic) 2.0.1
Sound Byte (OS X) 2.0.1
Synergy 0.8
Tactile12000 X 2.1.1
Transcribe 6.0
Transcribe X 6.0
Zerius Vocoder X 1.0

DEVELOPMENT

REALbasic Carbon 4.5.2 trial
REALbasic Classic 4.5.2 trial
Satimage osax 1.8.5
Satimage osax X 2.5.2
Smile 1.8.8
Smile X 2.5.2

FUN & GAMES

Bongo Boogie 1.1
Descender 1.0
F1 Championship 1.0.2 demo

Freeverse Board

Games
Ghost Recon 1.0 demo
Helix 1.0
Komi 1.0
Mah Jong Solitaire 1.25
Pongjourney 1.2
Quinn 1.1.1
SimHarbor 1.1.2
Simon Extreme 1.1

GRAPHICS & MULTIMEDIA

DivXRay 2.0.1
inCinema 1.0
MacVCD 3.2.1
MacVCD X 4.1.6
QC 5.03
UZR 3D Pro 1.4.1 demo
VCD Builder 1.1
ZebPhoto (Classic) 1.1.6
ZebPhoto (OS X) 1.1.6

INTERFACE

Custom Splash
Installer 2.0
DockFun 3.6.7
iCan 1.0.1
Labels X 1.1.1
Lioness 1.0.4
Safaricon 1.1.2

INTERNET & COMMUNICATION

Acquisition 0.74
Netscape (Classic) 7.01
Netscape (OS X) 7.01
Zoe 0.3.7

PRODUCTIVITY

CalculatorMax 2.0.2
Cumulus 5.5.1 demo
KuConta 2.1.5
MacDICT 2.6
MacDICT X 2.6
MacJournal 2.1.1
ToDo X 1.2

UTILITIES

CD Session Burner 1.0.1
CopyPaste 4.5
CopyPaste-X 1.5.2
CronniX 2.0.2
Desktop Control Suite 1.1
DiskTracker 2.2.2
DiskTracker (OS X) 2.2.2
DVD Capture 2.0
Gimp-Print 4.2.5
Kunvert 1.0.3
Mouse Recorder 1.2
OMCEdit 1.4
OnMyCommandCM 1.1
SuperScrubber 1.0.1 demo
Web Dumper 1.7
Web Dumper X 1.7

SPONSORS

DriveSavers: Lost Data video promo
REAL Software:
REALbasic Carbon 4.5.2 trial
REAL Software:
REALbasic Classic 4.5.2 trial

TO GET STARTED:

- 1 Double-click the CD-ROM icon to open it.
- 2 Double-click the About the Disc file. Carefully read and understand what this document says. Quit to close.
- 3 Double-click the MacAddict Tour icon to launch the interactive interface.
- 4 To end the Tour at any time, hold down the Command key and press Q.

REQUIREMENTS

Any Mac that can read a CD-ROM can access the shareware, demos, and system software from the Finder. Accessing the full CD-ROM interface requires a Power Mac, 8MB RAM, an 800 by 600 resolution monitor, and QuickTime 4.

IMPORTANT

This CD-ROM is compiled from a variety of independent sources. It is offered "as is." Future Network USA makes no claim that all programs will work on all systems. Please read the legal disclaimer file included on the CD-ROM.

UPGRADE

If you don't receive the Disc with your copy of MacAddict, you might want to consider upgrading! Each monthly disc contains cool demos, useful shareware and freeware, and the inimitable MacAddict Staff Video. To get 12 issues of MacAddict that include this value-packed disc with your subscription (prorated if necessary) for just \$1 more per issue, call 888-771-6222—the operator will take care of everything.

MacAddict

PUBLISHER **Chris Coelho**, 415-656-8770
EDITOR IN CHIEF **Rik Myslewski**

EDITORIAL

MANAGING EDITOR **Jenifer Morgan**
EXECUTIVE EDITOR **Cathy Lu**
SENIOR EDITORS **Narasu Rebbapragada** (news), **Kris Fong**
ASSOCIATE EDITOR **Niko Coucouvanis** (reviews)
EPONYMEDITOR **Max**
CONTRIBUTING EDITORS **Raf Anzovin**, **Steven Anzovin**,
Joseph O. Holmes, **Frank O'Connor**, **Angus Paidean**, **Ian Sammis**, **Deborah Shadovitz**, **Andrew Tokuda**, **Buz Zoller**

ART

ART DIRECTOR **Christopher Sterling Imlay**
ASSOCIATE ART DIRECTOR **Leslie Brown Osborn**
PHOTOGRAPHER **Mark Madoe**
PHOTOGRAPHY INTERN **Katherine Quan**

PRODUCTION

PRODUCTION DIRECTOR **Richard Lesovoy**
PRODUCTION COORDINATOR **Hans Hunt**

ADVERTISING

EASTERN ADVERTISING DIRECTOR
Bernie Lanigan, 212-768-2966 x4001
WESTERN ADVERTISING DIRECTOR
Dave Lynn, 949-360-4443
NATIONAL ACCOUNT MANAGER
Nate Hunt, 415-656-8536
NATIONAL SALES MANAGER
Stacey Levy, 925-964-1205
SENIOR ACCOUNTS MANAGER, DIRECT SALES
Ana Epstein, 415-656-8416
AD COORDINATOR **Jose Urrutia**, 415-656-8313
MARKETING MANAGER **Allison McCreery**

CIRCULATION

GROUP CIRCULATION DIRECTOR **Tina Rodlich**
NEWSSTAND MARKETING MANAGER **Mimi Hall**
BILLING AND RENEWAL MANAGER **Robyn Patty**
FULFILLMENT MANAGER **Angela Martinez**
DIRECT MARKETING SPECIALIST **Mary Nicklin**



Future Network USA
150 North Hill Drive,
Brisbane, CA 94005

Media With Passion

CHIEF EXECUTIVE/FUTURE NETWORK **Greg Ingham**
PRESIDENT **Jonathan Simpson-Bint**
VP/EDITORIAL DIRECTOR **Matt Firme**
VP/CFO **Tom Valentino**
VP/CIRCULATION **Holly Klingel**
GENERAL COUNSEL **Charles Schug**
PUBLISHING DIRECTOR **Simon Whitcombe**
DIRECTOR OF CENTRAL SERVICES **Nancy Durlister**

Future was founded in the UK in 1985. Today it publishes over 60 specialist consumer magazines worldwide. It is the leading publisher of video games and home-computing magazines in the UK and Italy. The company also licenses 37 of its titles, resulting in over 60 local editions in a further 22 countries. Future employs more than 1,000 people in offices in Bath, London, San Francisco, New York, Paris, and Milan. The Company is listed on the London Stock Exchange (symbol FNFT).

Tel +44 1225 442244 • www.thefuturenetwork.plc.uk
Media With Passion
Bath, London, Milan, New York, Paris, San Francisco

REPRINTS: For reprints, contact Reprint Management Services, Maggie French, 717-399-1900 x178 or mrfrench@reprintbuyer.com.

SUBSCRIPTION QUERIES: Please email mcdcustserv@cdsfulfillment.com or call customer service toll-free at 888-771-6222.

Volume 8, Issue 4

MacAddict (ISSN 1088-548X) is published monthly by Future Network USA, 150 North Hill Dr., Brisbane, CA 94005, USA. Periodical-class postage paid at Brisbane, CA, and at additional mailing offices. Newsstand distribution is handled by Curtis Circulation Co. Basic subscription rates: one year (12 issues + 12 CD-ROMS) U.S. \$39.90, Canada \$43.95, U.S. prepaid funds only. Canadian price includes postage and GST 128220688. IPM 0962392. Outside the U.S. and Canada, price is \$53.95, U.S. prepaid funds only. POSTMASTER: Send address changes to MacAddict, P.O. Box 5126, Harlan, IA 51593-0626. Future Network USA also publishes Maximum PC, PC Gamer, Official Xbox Magazine and PSM. Entire contents copyright 2002, Future Network USA. All rights reserved. Reproduction in whole or in part is prohibited. Future Network USA is not affiliated with the companies or products covered in MacAddict. Ride-Along enclosure in the following edition(s): B, B1, B2, B3, B4, B5, B6, B7, B8, B9. Standard enclosure in the following edition(s): A5. PRODUCED IN THE UNITED STATES OF AMERICA.

EXCLUSIVE VIDEO! INSIDE MAC EXPO

Who better to dig beneath the glitzy surface of San Francisco's annual Mac Expo, and expose the human drama within, than the intrepid all-volunteer, all-human MacAddict Army?

It's a lot easier to take on an army



when you **are** one.

DUNGEON SIEGE™

A ROLE-PLAYING GAME FROM CHRIS TAYLOR

Assemble and control a party of up to eight heroes at a time, as you battle your way through the seamless and expansive 3D world of Ehb. From warriors and archers to wizards, and even pack mules to carry your treasure, you and your party will wreak vengeance on an ancient evil. Whether you're playing alone or in multiplayer mode, victory is within your grasp. Let the battles begin.



www.macsoftgames.com



BLOOD AND GORE
VIOLENCE

GAS
powered
GAMES

Microsoft
game studios

Copyright 2002 Microsoft Corporation. All rights reserved. Microsoft is a registered trademark of Microsoft Corporation in the United States and/or other countries. Dungeon Siege is Copyright 2002 Gas Powered Games Corp. All rights reserved. Gas Powered Games and Dungeon Siege are the exclusive trademarks of Gas Powered Games Corp. Trademarks used under license by Destineer Inc. Destineer is a trademark and MacSoft is a registered trademark of Destineer, Inc.

MacSoft

It's All True

You read it here first: *MacAddict* is in final negotiations to acquire Apple Computer. When we take over, here's what I, as Apple-Guy-in-Chief, propose to do.

When I'm the Apple overlord, my first priority will be to make sure third-party software developers don't become as extinct as those gas-pump jockeys who once checked your oil.

Apple's software hegemony didn't start yesterday. In the beginning there was MacPaint, MacWrite, and MacDraw. Then HyperCard. Then AppleWorks. Then the floodgates opened, and iTunes, iMovie, iPhoto, iDVD, iCal, Mail, Final Cut Express, and Keynote took nibbles—nay, full-mouth chomps—out of third-party developers' hides. Now, don't get me wrong—Apple makes kick-ass software, and as I wrote in this space last month, I believe that because Apple is intimately aware of all the powers of OS X, Aqua, Quartz Extreme, et al, it's uniquely positioned to create the Mac's best software.

But one reason Apple's hardware is pricey is that tons o' cash is needed to feed all of its in-house coders. So when I take over Steve's job, my first order of business

will be to reduce Apple's hardware prices sharply and put all iApps on sale at prices comparable to those of their third-party competitors. It's brilliant: We user folks will get cheaper Macs, third-party software developers will get a fighting chance, and Apple can prove it makes great stuff by outselling its competitors at a decent profit. Win-win-win.

Cool? Definitely. And it'll happen soon: At our negotiations hidden away in the soon-to-be-filled-with-nuclear-waste underground vaults of the Yucca Mountain Repository Project, I believe I've twisted enough Apple arms to make them agree to turn over the company for one gross of Frito-Lay BAKEN-ETS® Hot 'N Spicy Flavored Fried Pork Cracklins in Grab 'n' Go 6-ounce bags, plus a pony keg of Coors Original. Luckily for us, the unpalatable cafeteria fare at Yucca Mountain has sapped Apple's fiduciary acumen.

If you doubt my veracity, just think of the likelihood of this takeover's success, then look at the month printed on the front of this magazine—you just gotta believe it's all true.—Hamson Deepdelper of Brockenborings

MORE

Here's a sampling of the policies I plan to implement following *MacAddict*'s acquisition of Apple Computer.

- Annual salaries shall be determined by adding three zeroes to the average gas mileage of an employee's primary vehicle, and then multiplying by $x/2$, where x equals the age of the vehicle.
- The use of the phrases "reality-distortion field," "drinking the Kool-Aid," and "insanely great" shall be punishable by a steel-cage deathmatch with Monkey-Man Steve Ballmer, Microsoft CEO.
- Employees of the newly merged *MacAddict*-Apple conglomerate shall each and every one be called by their Hobbit names, as determined by Chris Wetherell's Hobbit Name generator (www.chriswetherell.com/hobbit/default.asp).
- Ending a decades-long tradition, no Apple press release shall conclude with "Apple releasing the personal computer revolution in the 1970s..." Releases shall henceforth wrap up with "You will live in happiness too, like the Oompa Loompa doompadee do."



When *MacAddict* and Apple are one, Rik shall be known solely by his Hobbit name: Hamson Deepdelper of Brockenborings.

STAFF RANTS

Q1: What will you change first about Apple?
Q2: What's your long-term goal for Apple?

Mungo Chubb of Deephollow

What will you change first about Apple?

1. Every Genius Bar in Apple stores will now serve beer on tap. 2. The name "iLife" must go. Mungo has spoken!

What's your long-term goal for Apple?

To keep the toilets clean. Really clean. Clean enough to wash your hands, or whatever, in.



Rosie Trample of Woody End

What will you change first about Apple?

I'll veto the lame music Steve uses in his iMovie and iTunes demos. Some Rancid would really get the crowd going.

What's your long-term goal for Apple?

Clearly, Apple employees would be much happier in Kauai than in Cupertino—as would the Mac magazine journalists who would get flown in for press conferences.



Dimple Gamgee-Took of Bywater

What will you change first about Apple?

Packaging. If we decide to continue the Puma-Jaguar-Panther theme, the least we could do is offer faux-fur installation-disc sleeves.

What's your long-term goal for Apple?

Peace on Earth, an end to world hunger, no child left behind—y'know, the usual.



Sancho Peatfingers of Brockenborings

What will you change first about Apple?

For starters, all executive committee members—not just Steve—get a jet (we'll retrofit the parking lot, of course). Then we'll replant all the Apple campus gardens with that crazy haffling Hobbit weed. Woo-hoo!

What's your long-term goal for Apple?

World domination—what else is there?



Azaelia Boffin of Whitfurrows

What will you change first about Apple?

I'll politely inform Steve Jobs to stop hallucinating that one-button mice are better.

And then when he tries to fire me, I'll politely inform him that I'm his boss.

What's your long-term goal for Apple?

To migrate the USB and FireWire ports to the front of the machine so users don't have to fish around under a desk with a flashlight every time they want to download some photos.



Marigold Hamwich of Buckleberry Fern

What will you change first about Apple?

I will transfer ownership of that Gulfstream V from Steve Jobs to myself.

What's your long-term goal for Apple?

To develop human prototypes based on the heretofore grounded Steve Jobs for use in psychological research and development. Models will include the iD, the eGo, and the SuperEgo.



Elanor Maggot

What will you change first about Apple?

The name and logo, for starters. The company will be known as the much yummier and non-fiber-filled Gummi Bear.

What's your long-term goal for Apple?

To have Steve Jobs deliver the next five *MacAddict* Expo keynotes just so I can make him wear Gummi Bear-colored lime, orange, grape, lemon, and strawberry turtlesnecks.



Orgulas Gamwich of the Bree Gamwiches

What will you change first about Apple?

I'll move the prices of all Apple hardware and software one decimal point to the left.

What's your long-term goal for Apple?

To stay ahead of the idea-thieving Wintel hordes by continuing to make the best computers in the universe and by making sure all Mac developers, manufacturers, and vendors have the help they need to grow Clam Mac. May a thousand flowers bloom!



"I counted a forest full of trees by hand, then I got **REAL**."

*What do you do when the software you really want doesn't exist? Create your own with **REALbasic**®. You don't have to be a programmer to create your own software with REALbasic, just like you don't need to be an accountant to crunch numbers with a spreadsheet. You can build YOUR OWN powerful custom applications for Mac Classic, Mac OS X, and Windows.*

***Tree growth. Tree rings. And a man on a mission.** Ben Bond-Lamberty is a forest ecology researcher who uses tree rings to study how forest fires affect tree growth. The problem was, either he had to count the rings by hand or find a better way.*

***Enter REALbasic.** In less than six hours Bond-Lamberty had a functioning prototype; he completed his new custom application in his spare time. Now he and his colleagues spend more time on research and less time counting rings—his software is much faster and up to 100 times more accurate than doing it the old-fashioned way.*

Try REALbasic today for FREE.

Go to www.realbasic.com today to download a FREE demo. See for yourself how easy it is to create your own software.

REALbasic is so powerful that professionals use it, yet so simple beginners can have their first application up and running in less than an hour. With REALbasic, you can:

- Focus on your ideas instead of the things that make programming hard.
- Make database systems, utilities, productivity tools, and games—almost any kind of software you can imagine!
- Create compiled, native applications for Macintosh and Windows, using the same code and layout with just a click of a button.
- Use standards like TCP/IP, SQL, and QuickTime.

"REALbasic lets us spend more time analyzing our data and thinking about its implications, and less time struggling to gather it."

Ben Bond-Lamberty
University of Wisconsin



REALbasic®

Create your own software.™

www.realbasic.com
512.328.7325

The REALbasic Demo is on the MacAddict CD

FREE STYLE

Open-Source Software Made for Mac

You can spend thousands of dollars on software, or you can spend zero. OS X's Unix underbelly has open-source developers migrating to OS X, exposing Mac users to the wild, wacky world of free Unix software.

"We've seen a lot of people come to our open-source conference that used to be dual-boot [and] that are running OS X now," says Chuck Toporek, the open-source and XML editor at O'Reilly (www.oreilly.com), a large publisher of technical books. Toporek is referring to developers who attend the popular annual O'Reilly Open Source Conference, whose theme for 2003 is "embracing and extending proprietary software." Now that Apple has released the public beta of X11—the Unix/Linux graphic-display system for Mac OS X—it will be even easier for developers to port their Linux and Unix apps to Mac OS X (see "It Goes to X11," p13).

FREE SPEECH NOT FREE BEER

These developers are part of an idealistic community more concerned with liberty than with price. "You should think free as in free speech, not as in free beer," says the GNU (pronounced guh-NEW) Project Web site (www.gnu.org). Coordinated by the Free Software Foundation (www.fsf.org), the GNU Project's acronym stands for GNU's Not Unix (a computer geek's recursive joke).

Free software has turned into a viable alternative to expensive packaged apps.

It aims to create entirely free software with no proprietary components. GNU software combined with the free Linux kernel became the basis for GNU-Linux systems like Red Hat.

Users are free to run, copy, distribute, and improve software under the GNU General Public License (GPL), so long as they pass along that right to others, who can use and modify the updated software. A lesser form of the license allows companies to hold secret some proprietary code. A third family of non-GPL licenses, called BSD (Berkeley Software Distribution), lets developers make proprietary changes to

Get great software at a great price: free.

open-source code without releasing their changes.

That's what Apple did. At the core of OS X is a free, open-source operating system called Darwin, which is based on BSD Unix. Anyone can download and view

the Darwin source code and even suggest improvements. (Of course, Apple controls which changes get implemented.) In fact, a host of OS X developer tools, such as the Apache Web server, the GCC C compiler, and the Emacs text editor, are free. For more OS X open-source projects, see www.apple.com/macosx/technologies/darwin.html.

WHAT'S OUT THERE

Some free software projects have turned into viable alternatives to expensive packaged applications. Take MacGIMP (www.macgimp.org), the OS X–compiled version of the GNU Image Manipulation Program (GIMP). "It has a lot of the same features as Photoshop, and it's free," says Rafe Levien, chief technologist at Artifex Software, which makes GhostScript (www.ghostscript.com), a free PostScript



The OrobOSX Window Manager makes X11 windows look and act like Mac windows.

APPLE REPORTED A NET LOSS OF \$8 MILLION FOR ITS FIRST FISCAL QUARTER OF 2003, WHICH ENDED DECEMBER 28, 2002.

and PDF tool. Leven says GIMP is more scriptable than Photoshop and stronger when it comes to integration with Web-server applications. He adds that Photoshop retains the advantage in CMYK prepress functions.

Leven recommends that open-source neophytes play around with MacGIMP and the VideoLAN multimedia player (www.videolan.org). Pro users should download Fink (<http://fink.sourceforge.net>), a package manager that gives you a way to install other Unix applications in OS X. The professional-level film-retouching software Film GIMP (www.filmgimp.org), for example, requires you to install Fink first. (To find out about more open-source apps for OS X, see "Open Sesame," right.) In fact, SourceForge.Net (<http://sourceforge.net>), a huge open-source software development Web site, is a great place to start nosing around for open-source apps.

FUN VERSUS FUNK

Installing apps like Fink, however, could put you in a funk. As is the case with a lot

VideoLAN is an alternative to Apple's DVD player.

of other open-source stuff, it will send you to the Terminal to tweak config files. In fact, a lot of open-source software lacks a GUI and requires familiarity with the Terminal and Unix commands. Start boning up with books such as *Unix Power Tools* (O'Reilly, www.oreilly.com, \$69.95) or Phil Lavigna's *Fun with Fink: Using Open Source Software in Mac OS X* (www.funwithfink.com). *Fun with Fink* is a freely downloadable, 160-page PDF guide. As of press time, author Phil Lavigna was updating the book to reflect the latest version of Fink, which supports Jaguar. The updated book should be available by the time you read this.

Toperek's advice: "Don't be afraid."

There are a lot of things you can do more effectively from the command line than with any GUI tool."

Intrepid Mac users will be rewarded with



the sweet taste of free software and the warm, fuzzy feeling of supporting a maverick development community.—NR

OPEN SESAME

Open-Source Apps to Start Exploring

Unless otherwise mentioned, these and many more open-source offerings can be found on Apple's Unix and Open Source download page (www.apple.com/downloads/macosx/unix_open_source).

MacGIMP (www.macgimp.org)—a GUI-equipped photo editor.

EMacs—a popular command-line text editor.

VIM—an improved version of the popular VI text editor.

MPlayerOSX (<http://sourceforge.net/projects/mplayerosx>)—a multimedia player.

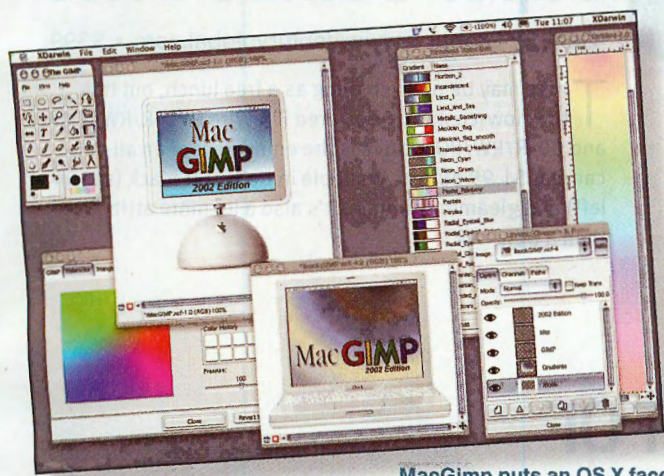
VLC (www.videolan.org)—another multimedia player. (It takes screenshots and plays DivX too.)

Apache—a powerful open-source Web server included in OS X.

Fink (<http://fink.sourceforge.net>)—a set of packages for installing open-source software.

Film Gimp (www.filmgimp.org)—a professional film-retouching tool.

GhostScript (www.ghostscript.com)—a PDF-creation tool that's not super Mac friendly.



MacGimp puts an OS X face on the Gimp image editor.

IT GOES TO X11!

Apple Releases Unix Windowing Environment for OS X

Apple made it easier for Unix and Linux developers to port their apps to Mac OS X when it released a free public beta of X11 for OS X (www.apple.com) at the San Francisco Mac Expo.

X11, also called the X Window System, is the de facto standard graphic-display system for Unix- and Linux-based operating systems. In other words, it does for Unix OSs what the Quartz graphics engine and Aqua interface do for OS X; it gives applications a way to draw lines, objects, pixels, text, and other graphic elements on your screen.

There are already other open-source X11 implementations—such as Xfree86 project—that run in OS X. The significance of Apple's implementation (which is based on the Xfree86 project) is that it works with Apple's Quartz graphics system. It's *rootless*, which means it allows Quartz (with the Aqua interface) and X11 apps to run side by side. You could even cut and paste between X11 and OS X applications.

The final, free release of X11 will be available later this year, so expect to see OS X ports of all kinds of Unix apps soon.—NR

DROOLWORTHY

Sexy Stuff We Can't Wait to Get Our Mitts On

Stylus Digital →

Olympus • www.olympus.com • \$399 street (Stylus 300 Digital), \$499 street (Stylus 400 Digital)

The Stylus is so chic that New York City's Metropolitan Museum of Art exhibited the popular film camera within its hallowed halls. Now the Stylus lineup walks on the wild side with its first-ever digital lineup—the 3.2-megapixel Stylus 300 Digital (\$399) and 4-megapixel Stylus 400 Digital (\$499). Both silvery point-and-shoot models have a weatherproof sliding clamshell lens cover and should be available by the time you read this.—NR

This tinsel-colored point-and-shoot is one of the first-ever digital cameras in Olympus's highfalutin' Stylus lineup.



PHOTOGRAPH COURTESY OF OLYMPUS



The SuperDrivette.

← Cold Chisel Slim Super Combo Drive

Century Global • www.centuryglobal.com • \$399

There may be no such thing as a free lunch, but this tiny, low-cost, bus-powered FireWire DVD-R/RW/CD-R/RW/ROM drive is the equivalent of an all-you-can-eat \$1.99 buffet. Available in both soft black (shown left) and gleaming chrome, it's also a lot more attractive than a BLT.—NR

PHOTOGRAPH COURTESY OF CENTURY GLOBAL

SURROUND SOUND, SORT OF

Boosting Music on the Mac

When it comes to surround sound, we do envy those PC punks. The Mac, including Apple's DVD player, *still* doesn't support true Dolby Digital sound. Two new

Sonica Theater's Circle Surround II technology decodes surround-sound information.

products, however, will turn your face a lighter shade of green.

M-Audio's Sonica Theater external USB sound card (\$99.99 street, www.m-audio.com) and Revolution internal PCI sound

card (\$99.99 street) simulate serious surround sound on your Mac.

The problem is that Apple doesn't license the official Dolby Digital surround-sound decoders, even though OS X's Core Audio does support multiple channels of audio and Dolby AAC audio compression. Word on the street is that OS X will soon support 4.1 audio (which hasn't happened as of press time). That's a promising start, because with 4.1- audio, you'll hear sound traveling left, right, front, and back. That's good, but it's not great, since 5.1 surround sound is all the rage right now for playing games



With M-Audio's USB external I/O device, you can rig up a home theater when you're not at home.

and watching DVDs on a PC-based home-theater system.

Enter M-Audio. The Sonica Theater,

PHOTOGRAPHY COURTESY OF M-AUDIO

MOVE OVER, INKJET

Color Laser Printers Get Cheaper

MINOLTA-QMS MAGICOLOR 2350 EN

www.minolta-qms.com, \$1,099

Resolution 1,200 dpi

Print Speed 4 ppm (color), 18 ppm (black and white)

Standard Memory/Maximum Memory 128MB/384MB

Processor 200MHz

Ports 10/100Base-T Ethernet, USB 1.1, parallel (optional Bluetooth and 802.11b expansion cards available soon)

Our Take Print speeds on the Magicolor 2350 EN won't break any records, but the low price opens the door to a whole new category of consumer. Manual duplexing is possible, and a tray for automatic duplexing is optional.



PHOTOGRAPH COURTESY OF MINOLTA

This is one of the lowest-cost color laser printers out there.

GCC ELITE COLOR 16DN

www.gcctech.com, \$2,299

Resolution 1,200 dpi

Print Speed 17 ppm (color), 17 ppm (black and white)

Standard Memory/Maximum Memory 256MB/512MB

Processor 300MHz

Ports 10/100Base-T Ethernet, USB 2.0

Our Take GCC Technologies is one of the oldest but—undeservedly—least known names in the Mac printer business. Its newly announced 16DN comes with built-in automatic duplexing and two high-capacity paper trays—great for a workgroup or small office. It should be available by the time you read this.



PHOTOGRAPH BY DAVID SCHLOSS

GCC Technologies is an old faithful with a solid color-laser offering.

XEROX PHASER 8200/N

www.officeprinting.xerox.com, \$1,899

Resolution 1,000 dpi

Print Speed 16 ppm (color), 16 ppm (black and white)

Standard Memory/Maximum Memory 64MB/256MB

Processor 300MHz

Ports 10/100Base-T Ethernet, USB 1.1, parallel

Our Take The Xerox 8200 isn't a laser printer, since it relies on the thermal transfer of wax sticks to print color. This printer's price, speed, specs, and marketing, however, make it a worthy competitor to the rest of these color laser printers. Even better, the melting wax sticks make the room smell like crayons.



PHOTOGRAPH COURTESY OF XEROX

The Xerox 8,200 isn't technically a color laser printer, but it works as well as one.

LEXMARK C750N

www.lexmark.com, \$2,399

Resolution 1,200 dpi

Print Speed 20 ppm (color), 20 ppm (black and white)

Standard Memory/Maximum Memory 64MB/256MB

Processor 350MHz

Ports 10/100Base-T Ethernet, USB 1.1, parallel (optional 802.11b card available for \$199)

Our Take This workhorse can couple with an add-on multifunction unit to transform into a scanning, copying, and faxing beast. Of course, the add-on costs \$4,000 extra.



PHOTOGRAPH COURTESY OF LEXMARK

Spring for the pricey multifunction add-on, and this multitasking printer can be your very own Kinko's.

a revamp of M-Audio's existing Sonica product (*Reviews*, Jan/03, p49), gives you 24-bit, 96KHz audio I/O—unlike the original device, which could only output audio. Sonica Theater's Circle Surround II technology decodes surround-sound information, so the Sonica Theater works with a greater number of surround-sound speakers than the Sonica did. (The latter required receivers and speakers with built-in surround-sound decoding.) For slightly better audio quality, M-Audio's Revolution internal PCI sound card gives you 24-bit, 192KHz audio I/O.

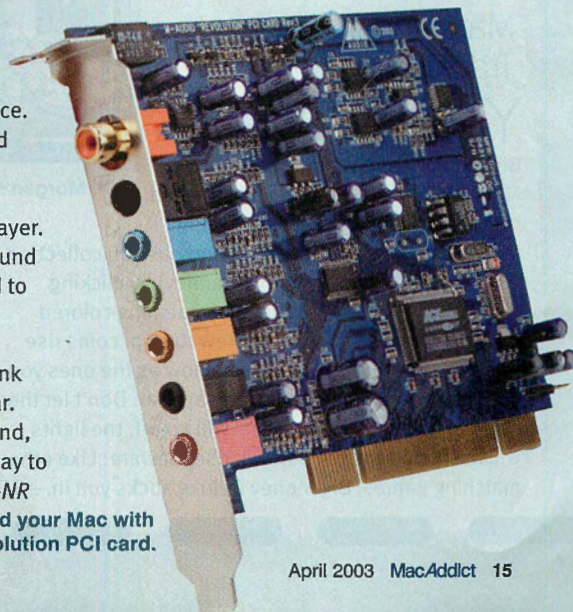
A warning to audio purists: You won't get the true 7.1 audio surround sound advertised on the box, since Apple can't officially decode Dolby Digital or DTS

surround sound. According to M-Audio, Circle Surround II can simulate 6.1 surround sound on the Mac and most people won't be able to tell the difference.

Both of these products come bundled with the VideoLan Client Dolby Digital-Enabled DVD Player, a Dolby Digital-friendly alternative to the Apple DVD player. The VideoLan player can transmit surround data but still relies on Circle Surround II to open it up and decode it.

Some will think M-Audio's simulated surround sound is great. Others will think it comes frustratingly close, but no cigar. Until Apple supports true surround sound, however, these products are the best way to give your Mac that home-theater feel.—NR

Surround-sound your Mac with M-Audio's Revolution PCI card.



GAME NEWS



Worshiping your
pets is optional.

A fish, a fish, oh
fishy fish!

WHEN CONTROLLING TINY HUMANS ISN'T ENOUGH

New Expansion Pack Brings Pets to The Sims

You've had your Hot Date, the House Party was a blast, you're back from Vacation, but you want more. You want critters. The Sims: Unleashed, the newest expansion pack for the monster Sims franchise, lets you adopt a dog, cat, bird, fish, or lizard (from the pet store, of course). Teach your new pet tricks, scold its bad behavior, or invest in training. You can then take your pet to work, walk it in one of the new parks, or even have your dog attack your neighbor. You also get optimized performance and more Sims perks, including new homes, bigger neighborhoods, and new jobs.—*Bryan Chaffin*

The Sims Unleashed
Aspyr
www.aspyr.com
\$29.95
Available: Now

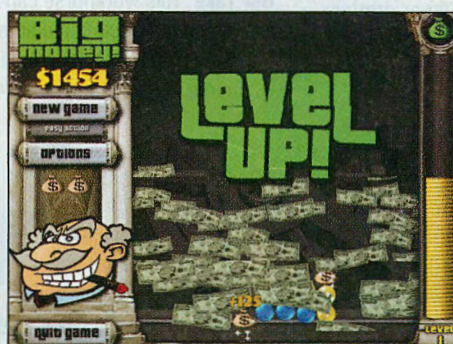
MONEY, MONEY, MONEY

Fast-Paced Pattern Matching in the Tradition of Tetris

You might already have seen these glittery coins in PopCap's Big Money Flash Web game, which MacPlay has polished up and released commercially on CD. Fast-paced Big Money Deluxe plays like Tetris and has you collecting

Big Money Deluxe
MacPlay
www.macplay.com
\$19.99
Available: Now

points (money) by clicking groups of matching colored coins. New rows of coins rise up from below as the ones you collect disappear. Don't let them stack to the top, or the alarms will go off, the lights will flash, and the tension will rise. Beware: Like other matching games, Big Money Deluxe sucks you in.—*BC*



J. P. Morgan's secrets are revealed at last...



Tetris takes Vegas—match
colors for cash in Big Money.



Mummy's bad breath sold separately.

MUMMY DEAREST

Walk Like an Egyptian in Mummy Maze

If you like mazes, mummies, and the thrill of running for your life, check out Mummy Maze on a CD near you (no dice required). MacPlay packed PopCap's free Maze puzzler with pyramids, mazes, and 3D-rendered graphics. In Mummy Maze, you're an explorer deep inside a pyramid. Using simple mouse or keyboard commands, you must navigate your way out of your tomb through a series of mazes with the faster mummy in hot pursuit. Walls, dead ends, and other traps await you, but they also help keep the mummy away. Mummy Maze is one of those easy-to-learn but difficult-to-master numbers—you'll need your thinking cap for some tricky maze navigation.—*BC*

Mummy Maze Deluxe
MacPlay
www.macplay.com
\$19.99
Available: Now

BO DEREK'S GOT NOTHING ON THIS NUMBER

Aladdin Bundles Ten Shareware Games for OS X

It's a good thing Aladdin can't count. They've gone on a rampage, rounding up 13 games for a bundle it calls Ten for X: Games. The CD includes 3D Bridge Deluxe, AirBurst, Astrosquid,

Ten for X: Games
Aladdin Systems
www.aladdinsys.com
\$49.99
Available: Now

Bommo Sweeper X,
Bugdom 2, Burning
Monkey Puzzle Lab,
Classic Cribbage,
Cro-Mag Rally, Deep

Trouble, GeneForge, Jinni Zeala, Video Poker 5000, and WingNuts. While there are no new titles in the list, \$49.99 buys you licenses to all of these X games.—*BC*

PHOTOGRAPHY COURTESY OF APPLE



Nothing succeeds like excess—for less.

MORE FLASH, LESS CASH

Power Mac, iMac, eMac, and LCD display prices are moving in the right direction. Down.

You think you have problems? What if you were the poor schlub who thumped down \$6,798 for a dual 1.25GHz Power Mac and a 23-inch Cinema HD display on January 27, only to wake up on January 28 to discover Apple had slashed the price of the same setup to \$3,998?

Apple's Mac and LCD lines took a serious price dive recently, while at the same time Apple beefed up their features and performance. The new Power Mac trio, still based on the Mirror Drive Door case and motherboard, is led by a dual 1.42GHz (\$2,699) and rounded out by dual 1.25GHz (\$1,999) and single 1GHz (\$1,499) models. All have dual FireWire 400 and single FireWire 800 ports, can be equipped with Bluetooth (\$50) and 54-Mbps AirPort Extreme (\$99) modules, and have 64MB of DDR video RAM—on an ATI Radeon 9000 Pro in the two higher-end models and on an nVidia GeForce4 MX in the bargain-basement beauty. The way-wicked 128MB Radeon 9700 Pro and nVidia GeForce4

Titanium video cards are options at \$300 for the top two machines and \$350 for the 1GHz model. A SuperDrive comes standard only at the high end; on the other two models, which come equipped with Combo drives, it's a \$200 option—and both the SuperDrive and the Combo drive are twice as fast as previous versions.

iMac shoppers: The new 1GHz 17-inch iMac now includes a 133MHz system bus and the same DDR-based memory architecture as the newest Power Macs. At \$1,799, 54-Mbps AirPort Extreme and Bluetooth are options, but standard equipment includes 256MB DDR SDRAM, an 80GB hard drive, and the same speedy SuperDrive that's in the new Power Macs (sorry, no FireWire 800). The 15-inch iMac remains in the line—for now—and has been boosted to 800MHz with a price drop from \$1,499 to \$1,299. And speaking of price drops, a 700MHz eMac is now \$999 (from \$1,099), though its 800MHz, SuperDrive-equipped big brother remains at \$1,299.

The new price tags on the 17-inch Apple Studio Display and the 23-inch Cinema HD Display—\$699 and \$1,999, respectively—make buying a flat-panel a more enticing proposition, and the addition of a new 1,680-by-1,050-pixel, \$1,299 Cinema 20-incher makes maxing out your credit card even more tempting. —Rik Myslewski



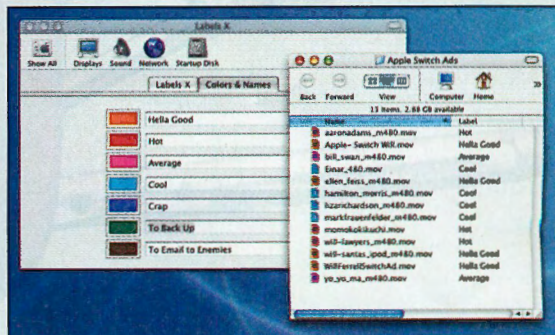
Does the .02GHz in the 1.42GHz Power Mac really matter?

SHAREWARE PICK OF THE MONTH

LABELS X 1.1.1

Unsanity • www.unsanity.com • \$7

Labels, the Mac OS's color-coded file-labeling system, went AWOL in OS X. Unsanity's Labels X brings it back. This haxie (that's slang for an OS X hack) gives you a System Preference pane that lets you color-code and prioritize files and folders. You can apply up to seven colors with customizable names to a file by control-clicking its icon or by choosing a color from the Labels column in OS X's List view. Labels X is just one more treat that sweetens the die-hard OS 9 user's switch to X. —Andrew Tokuda



Keep the venerable Mac OS label names, such as Hot and Urgent, or go for something, um, heila good.

The MacAddict

Ultimate HARDWARE Tool Kit

Bring your old Mac up to speed; coax any Mac, display, or hard drive back to health; and suss out the latest dope on today's hottest hardware to achieve superstorage.

19 Supercharge Your Mac

27 Repair 101

30 All About Storage



illustration by Oliver Wolfson

photography by Mark Madeo
unless otherwise noted



Lie back. Get comfortable. Now, how do the words *dual processors, DDR SDRAM, ATA/100, and video cards with more memory than you got in your whole Mac just two years ago* make you feel? Sweaty-palmed? Jealous? Or perhaps you feel inexplicably angry with [choose one of the following]:

- a) yourself b) your god c) Steve Jobs
d) both b and c e) c is my b

Don't worry. We understand. If you purchased a new Mac a year or two ago, the specs and prices of the latest Power Mac G4s are enough to put you flat on your back on your psychiatrist's couch. But before you pop a Prozac, consider this: Hard drives, RAM, and other upgrade components have never been cheaper. With a small investment and a few choice parts, you can bring many older machines up to par with Apple's current swag. Well, almost. And here's another thing to consider: Unlike Apple's new machines, you can boot an upgraded Mac into OS 9.

So if you can't drop dough on a new Mac right now—or you still need to boot into 9—you can get your existing Mac close to the latest specs with nothing more than a Phillips-head screwdriver and your standard-issue, not-quite-maxed-out credit card. It's a great alternative to buying new—at least until that new G5 comes around. (And if that happens this year, then c really *will* be our b.)

SUPERCHARGE YOUR MAC

by Todd Stauffer

Speed & Power

The biggest complaint people have about their aging Macs (aside from the sagging side doors and the bags under their drives) is that they seem to fall behind a step or two. Of course, Macs don't really get slower—applications get more demanding. For example, if you were to launch Word 1.0 on a Mac Plus running System 6.0.8, it would still seem relatively sprightly.

Speeding up your Mac means attacking bottlenecks that impede its ability to move around data and instructions, calculate them, and reflect that information on your display. Roughly in decreasing order of importance, these bottlenecks include:

- **RAM** The less RAM you have, the more often your Mac has to refer to your hard disk to find data, thus slowing things down.
- **Video processing** Having slow (or no) graphics acceleration and inadequate video RAM can slow your Mac when it's running applications that use or require acceleration—OS 10.2, for example, and most games.

➤ **Cache RAM** Cache RAM holds data and instructions that the processor needs to access quickly. Very quickly. Often you can't upgrade cache RAM on its own (at least, not on new Power Macs), but you can do it via a processor upgrade card.

➤ **Processor** All things being equal, the slower your CPU, the slower your Mac. Simple as that.

Surprised that upgrading the CPU is at the bottom of the list? You're not alone. Most people think a new, fast processor equals a new, fast Mac. That's only partially true. If you have bottlenecks in other areas, you may experience little to *no* benefit from a processor upgrade.

RAM

Take a Blue-and-White Power Mac G3/400, outfit it with 512MB of RAM, and you've got a Mac that can run OS 10.2 and Adobe InDesign. If you don't believe us, stop by the office of this article's author—he has an artist laying out a magazine on that very machine (can you tell Todd's a cheap SOB?). He's even got a beige G3/266 with 384MB of RAM running OS 9.2 that he uses to create tabloid-size PDF pages—and no, we didn't reprint this article from our September 1999 issue.

If your Mac has at least a PowerPC G3 processor, it's got some



life in it, as long as you boost its RAM—we recommend a minimum of *half a gigabyte*. You heard us. You can get away with less, but RAM is cheap and—especially if you're running OS X—your Mac will love you for it.

Know Your RAM

So, what sort of RAM does your Mac need? It depends on your model. Nearly all PowerPC-based Macs use DIMMs (dual inline memory modules), although because of their limited case space iMacs and most laptops use SO-DIMMs (small outline DIMMs). Older Macs, as in pre-PowerPC and some first-generation PowerPC Macs, such as the 6100, 7100, and 8100, use SIMMs (single inline memory modules). All you need to know about the difference between SIMMs and DIMMs is the way you install them—SIMMs go into their slots at an angle, while DIMMs go straight down into an available memory slot.

Just as important as a RAM module's form factor is the actual RAM technology. Find your model in the list below for guidance on what kind of RAM you need. By the way, if you have a machine released in the past couple of years, Apple has a great Web site (www.info.apple.com/usen/cip/index.html) that can help you put in "customer-installable parts" like RAM and AirPort cards.

❖ **Mirrored Drive Door Power Mac G4s, 12-inch or 17-inch PowerBooks, spring 2003 17-inch iMacs** These Macs require a type of RAM that Apple introduced in the Xserve—DDR SDRAM (double data rate synchronous dynamic RAM). DDR SDRAM works by transferring data on both edges of a clock cycle, the uptick and the downtick. When you buy DDR RAM, you should match it to your Mac's main bus speed (either 133MHz or 167MHz), although you can use higher-speed RAM with lower-speed Macs—it just runs at the lower speed.

❖ **Older G4s** If you have a pre-Mirrored Drive Door G4 (or a G4 Cube), you most likely need PC133 SDRAM. That's synchronous DRAM that runs at 133MHz, which is the bus speed of Power Mac G4s built in January 2001 or later. The original Power Mac G4 models—those with 350MHz to 500MHz processors—have 100MHz system buses and therefore can get away with PC100 SDRAM (SDRAM is backward compatible).

❖ **G3s** Blue-and-White G3s use PC100 SDRAM, but beige G3 systems, with their 66MHz bus, take 66MHz SDRAM DIMMs. And watch out if you're upgrading a beige G3. In the desktop models,

BUYER BEWARE SDRAM BUYERS

SDRAM has speed specs: 3-2-3 SDRAM is the slowest, while 2-2-2 is the fastest. If you can, buy all 2-2-2 SDRAM, since mixing and matching means the slowest speed will prevail. Apple hasn't always shipped 2-2-2 with its models, so you may have to replace existing DIMMs to get optimum speeds. There's no standard way to check if you have 2-2-2 RAM—sometimes a DIMM will say 2-2-2 on it, other times the part number may contain 222, CL2, or something similar.

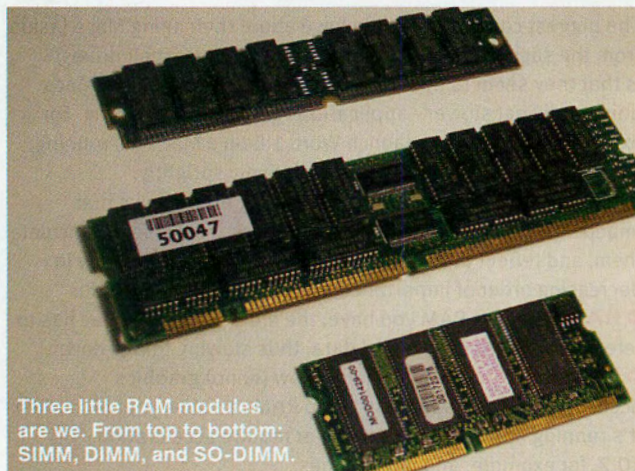
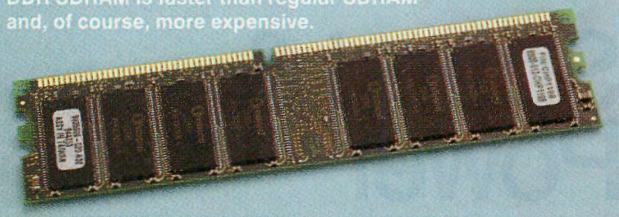
some slots don't accept certain tall DIMMs, so shop carefully for RAM that's designed to fit. There are also differences in RAM support based on the logic-board revision of your G3 desktop (check out <http://docs.info.apple.com/article.html?artnum=24924> to find out what revision you have). For instance, Rev. 3 logic boards can support three 256MB modules for a maximum of 768MB, according to Apple.

❖ **iMacs** Tray-loading iMacs use PC66 SDRAM, slot-loaders use PC100 SDRAM, and most iMac G4s use PC133 SDRAM, all in SO-DIMM format. Tray-loading iMacs have a quirk: The lower DIMM socket, which you access by removing the logic board, accepts only a 1.25-inch module (not the standard 1.5-inch SO-DIMM). Some RAM vendors aren't aware of this limitation, so wise 'em up.

❖ **eMacs** eMac 700s use PC100 SDRAM, while eMac 800s use PC133 SDRAM. You can remove and replace the base RAM with a higher-capacity module, if you want.

❖ **Laptops** PowerBook G3s, PowerBook G4/400s to G4/500s, and iBooks use SO-DIMM SDRAM. These days, PC100 is pretty much the slowest RAM available, so you can load up your 'Book with either that or PC133 RAM. Most PowerBooks have upper and lower SO-DIMM slots. If you're upgrading a PowerBook G3 Wall Street or Lombard, be aware that they require 1.25-inch modules, while the Pismo can handle two 2-inch modules. All PowerBook G4 models use PC133 SDRAM SO-DIMMs except the Lilliputian 12-inch PowerBook G4, which uses PC2100 DDR

DDR SDRAM is faster than regular SDRAM—and, of course, more expensive.



Three little RAM modules are we. From top to bottom: SIMM, DIMM, and SO-DIMM.

SHOPPING LIST RAM

When shopping for RAM, it's important to buy from dealers familiar with the nuances of various Mac models. In addition to the usual MacWhatever.com suspects—MacWarehouse.com, MacConnection.com, MacZone.com, and MacMall.com—we recommend:

Crucial (www.crucial.com). This site sells its own name-brand RAM and offers good prices and guarantees.

MCE Technologies (www.mce.com). If you have a PowerBook or an iBook, you're home.

NewerRAM GURU (www.newerram.com). This company's GURU (Guide to RAM Upgrades) software provides tips and help with RAM module types.

Other World Computing (www.macsales.com). This well-organized site is chock-full of information about which RAM module is right for you.

RAMJet (www.ramjet.com). This company's RAM is inexpensive and its site is easy to maneuver.

Trans International (www.transintl.com). You can get good, specific information here, all well organized, Mac by Mac.



BUYER BEWARE POWER MAC G4 OWNERS

Be careful when shopping for RAM for Power Mac G4s: Some RAM manufacturers make DIMM modules that are compatible with all G4s (despite some slight differences between the RAM architecture in early and later models), while others differentiate between the earliest PCI-based graphics models—code-named Yikes—and other G4s.

SDRAM, and the Brobdingnagian 17-inch PowerBook G4, which uses PC2700 DDR SDRAM.

❗ **Older Power Macs** Geriatric Power Macs use 60- or 70-nanosecond FPM (fast page memory) DIMMs. A few models—the Power Mac 4400, 5500, and 6500 and the Performa 6400/200 with built-in Zip drive—support EDO (extended data out) DIMMs. The 4400 series requires 3.3-volt EDO RAM, whereas the others require 5-volt EDO. If you're upgrading a Power Mac 7200, Apple says you should avoid EDO DIMMs altogether. Other models can use either FPM or EDO, although it's not a good idea to mix and match in the same memory bank—plus there's no benefit to EDO if a machine is not optimized to take advantage of it.

GRAPHICS ACCELERATION

After RAM, graphics acceleration is the second-biggest performance bottleneck—especially if you play games or perform graphics-intensive work like high-end animation. And now that OS 10.2 Jaguar's Quartz Extreme takes constant advantage of graphics acceleration, you can enjoy kick-ass performance if you have both graphics acceleration and the required 16MB or more of video RAM.

A graphics accelerator is essentially a computer within a computer. It has a processor and RAM, and it handles the processing of the polygons, transparency, shading, and other elements that go into creating 3D graphics. A graphics card is the math whiz you wish you could have been. An accelerator makes it possible to offload things like high-end game graphics from your main CPU, so your Mac can worry about responding to your input while trying not to laugh at your pitiful fighting moves.

AGP Versus PCI

Today's graphics accelerators slide into either a PCI or an AGP slot (sorry, iMac and laptop owners—only Power Mac users can upgrade their video cards). The AGP slot, which is in nearly all Power Mac G4 models, is specifically designed to accommodate high-speed graphics cards. Although Apple ships a graphics card in that slot, you can replace it with a higher-speed or dual-display card, or you can add a second card to a PCI slot.

There are two types of AGP slots: 2X and 4X. As you'd suspect, 4X is faster. Remember, though, that many AGP cards can autosense the slot speed and compensate, so you can use a 4X card in a 2X slot (albeit slowly).

Upgrade Choices

Currently, the sole manufacturer of *retail* graphics accelerators for Power Macs is ATI. nVidia, the other big player, only provides chip technology (and not the actual boards)—you have to buy nVidia cards from Apple.

Buy as much accelerator as you can afford. If you've got the



SHOPPING LIST GRAPHICS CARDS

There are only two major companies in the biz, so there's not a whole lot of options to choose from.

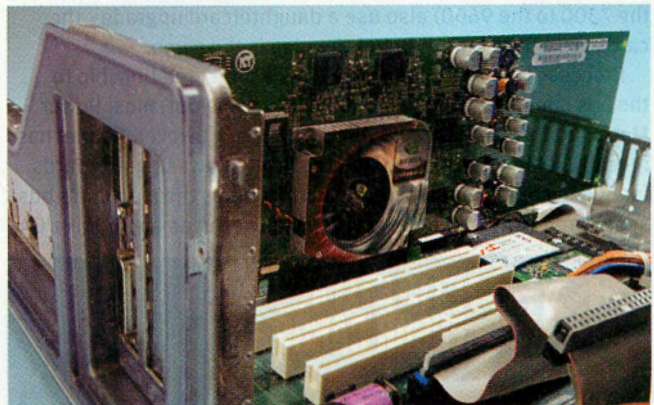
ATI Radeon 8500 and Radeon 9000 Pro Mac Edition (\$199 and \$169.99, www.ati.com). For the most part, these two cards offer the same performance, although the 9000 supports ADC and DVI while the 8500 also supports output to a TV. With 64MB of DDR video memory, both cards will work in either an AGP 2X or an AGP 4X slot. You may, however, want to hold out for the Mac version of the Radeon 9700, a killer gamers' card due out this spring.

ATI Radeon 7000 Mac Edition (\$129). This PCI card has 32MB of DDR video memory. This is a good choice for older Macs that lack AGP. You won't get OS X acceleration (since Quartz Extreme only works on AGP cards), but your games and 2D performance will be snappier.

nVidia GeForce4 Titanium (\$399, www.apple.com). While Apple says the Ti will only work in an AGP 4X slot, the folks at nVidia tell us you can use it in, say, your Sawtooth's 2X slot. With 128MB of DDR video memory, this is the current high-end card of choice—at least until the ATI Radeon 9700 comes out.

bucks, opt for a high-end card that supports both pixel and vertex shading, such as ATI's Radeon 9000 or nVidia's GeForce4 Titanium. Programmable pixel and vertex shaders allow game developers to include sophisticated real-time effects in their games—if you like exploding viscera, these shaders are your cup of blood...uh, tea. Expect pixel and vertex shading to become more prevalent in next-generation games such as Doom III.

Before you install a graphics card, you might need to install its software drivers first. Installer software puts drivers for acceleration on your hard drive, plus in some cases a Control Panel or System Preference pane to give you finer control over the accelerator's features.



Installing a video-card upgrade is child's play (although you might not want to let your child do this, just in case). Shut down, ground yourself, unplug the Mac, and install the card.

PROCESSOR CARDS

Yes, processors come a little lower on the upgrade totem pole, but if you've got enough RAM and graphics acceleration, a processor upgrade can take your Mac to the next level with a more powerful chip, a higher clock speed, and better and more cache memory.

The two major manufacturers of processor upgrades are Sonnet Technologies (www.sonnettech.com) and PowerLogic





BUYER BEWARE BEIGE G3 OWNERS

A small percentage of beige G3s aren't compatible with PowerPC G4 upgrades unless you replace the VRM (voltage regulator module), which controls the amount of power the processor receives. If your beige boy has a VRM manufactured by Royal Technology (the company name is on the VRM, which sits in a slot near your PRAM battery), you must replace that component before you upgrade. See www.ccidomain.com/mac/vrm-ultra/index.htm for details on the problem and the \$79.95 solution.



(www.powerlogix.com). A new low-cost upstart named GigaDesigns (www.gigadesigns.com) appeared too late to make it into this article—but not too late for us to gag at its crass “G Spot” ad campaign. Sonnet cards are plug-and-go, while PowerLogix cards are for the most part highly tweakable. Which approach you prefer depends mostly on your personality. Do you want to futz around with switches or dials to see if you can eke out a tiny bit of extra speed? Or do you want to snap it in and forget it? Don't answer too quickly—both approaches have their value.

Power Mac Upgrades

There are two types of processor upgrades for Power Mac G3s and G4s. G3s and PCI Graphics G4s (aka Yikes) take a ZIF (zero insertion force) socket upgrade—you remove the processor itself from the logic board (carefully!) and install a replacement (see “Perform a ZIF Upgrade,” p23).

Later Power Mac G4 models take a daughtercard upgrade. With these, you replace a circuit board with a card that includes a faster processor and, in most cases, additional Level 3 cache. There are also dual-processor card upgrades for many later Power Mac G4 models (check Sonnet's or PowerLogix's Web site to see if your model is down with doubling).

Earlier Power Mac models that sport PCI slots (everything from the 7300 to the 9600) also use a daughtercard upgrade—the cards are a little different, but the idea is the same.

Processor upgrades generally have a direct relationship to the bus speed of a Mac. Before the G3s came out, most Power Macs had bus speeds of 40MHz or 50MHz. However, Sonnet has recently come up with a workaround that allows upgrade cards for PCI machines to run at more than 10 times the machine's bus speed. You can now get upgrades as powerful as an 800MHz G4,



BUYER BEWARE SIX-SLOT POWER MAC OWNERS

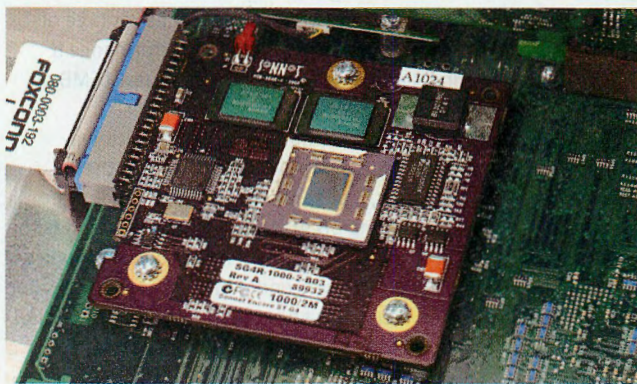
Some G4 upgrade cards (particularly those in the 350MHz to 500MHz range) will cause problems in six-slot Power Mac models such as the Power Mac 9600: Three of the slots stop working (whoops). The workaround will cost ya—you have to buy a newer G4 card, such as Sonnet's 800MHz models, which don't appear to cause the same problem.

as opposed to the old limit of 400MHz or 500MHz—a significant boost for any Power Mac that originally had a PowerPC 604 processor (remember those?).

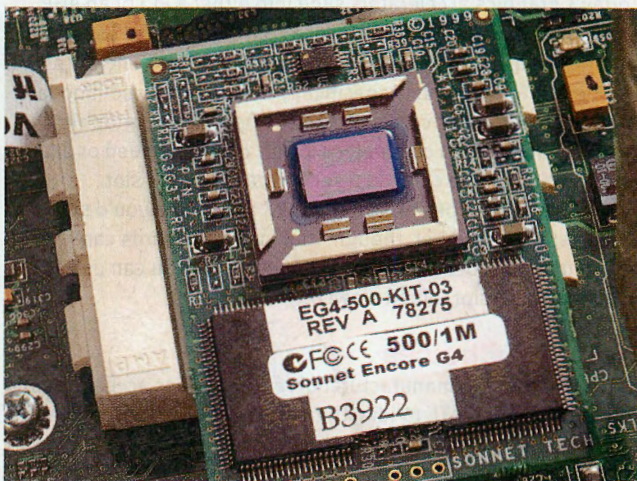
PowerBook and iMac Upgrades

So everyone (and by everyone we mean Apple) says you can't upgrade iMacs and laptops. Sure, these machines don't have the tweaking potential of Power Macs, but you can still have some fun. For example, you can upgrade the early iMacs (Rev. A to D)—but you can't tinker with the later models. You can also upgrade most PowerBook G3s.

If there's one problem with CPU upgrades, it's that they generally make your Mac a bit more temperamental than one with an Apple-installed CPU. Direct ZIF upgrades are the best—your Mac won't even know what hit it. Some daughtercard upgrades require that you install additional software (a driver or enabler), which you must update when new Mac OS versions come out. But you'll need to wait for the upgrade manufacturer to update the software before you can move to a new OS.



A Power Mac G4 (AGP) or later takes a daughtercard CPU upgrade.



A Power Mac G3 takes a ZIF socket CPU upgrade.



SHOPPING LIST PROCESSOR CARDS

Decided to upgrade your processor? Then pull out your credit card, launch Safari, and start shopping.

Sonnet Technologies (www.sonnettech.com). Sonnet offers tons of upgrades for PCI-based, daughtercard, and ZIF-socket machines. Its most impressive offerings include its 800MHz upgrades for PCI-based Macs and its 1.2GHz daughtercard upgrades.

PowerLogix (www.powerlogix.com). Among PowerLogix's offerings are dual-processor upgrades for late-model Power Mac G4s and upgrades for a wide range of PowerBooks.

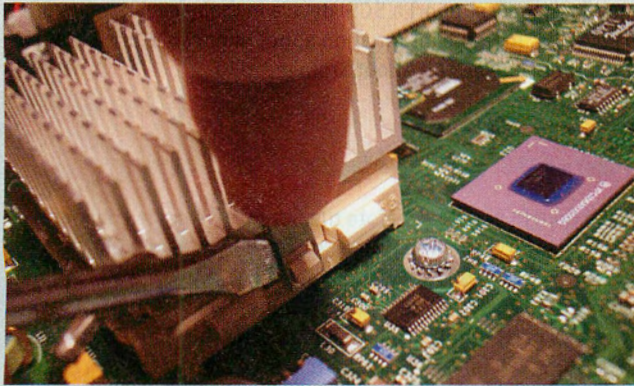
Newer Technology (www.newertech.com). Back from the dead, Newer offers a PowerBook G3 Pismo upgrade, a ZIF-socket upgrade for G3s and G4 Yikes, and some PowerBook accessories.

Other World Computing (www.macsales.com). This reseller makes a few cards of its own, and offers cards from major manufacturers such as the now-defunct XLR8 and the new-to-the-scene GigaDesigns (www.gigadesigns.com).

▶ HOW-TO Perform a ZIFfy Upgrade

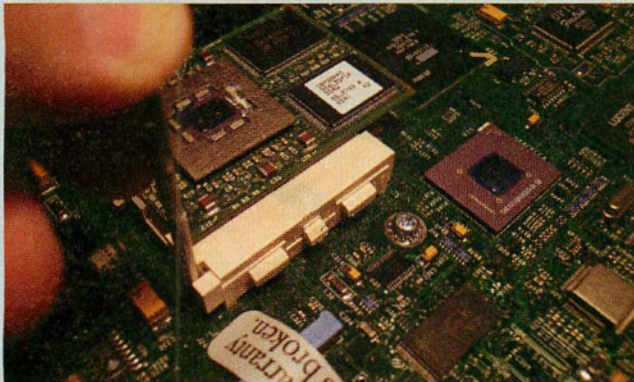
If you're intimidated by the thought of putting a new processor in your Mac, don't be. Here we demonstrate how easy it is by showing you how we upgraded a Blue-and-White G3/400 to a Sonnet Encore/ZIF G4/500.

- 1** Shut down your Mac, and then ground yourself with either a grounding strap or by touching metal on your Mac before unplugging it.
- 2** Open up your Mac and remove the heat sink from the CPU. You need to pry off the little bar (press down on its top and pry up on its side) to make the heat sink pop off.



You've got to pry off the retaining bar to remove the heat sink.

- 3** Unlock the CPU's socket—lift the bar next to the CPU by pulling the bar slightly away from the CPU and then swinging it up. Remove the original CPU, placing it in the antistatic bag that contained your upgrade.



Raise the bar so you can remove the CPU.

- 4** Align the upgrade CPU with the slot—there's a pin absent on the bottom of the upgrade, which matches the gap on the ZIF socket. Drop the CPU into the socket—if it's aligned right, it should slip into the ZIF socket with little more than a tap. If it doesn't go in easily, *don't force it*. Double-check the alignment of the pins and try again.

- 5** Lower the locking bar, and you're set. If you hear beeps when the Mac tries to start up, you may not have seated the processor correctly; head back to step 1.

Storage & Connections

Once you've gotten past speed issues, the next step is to add some storage to your aging Mac. Today hard disks are cheap and you can add them internally, externally, or...er...those are your two options. (See "All About Storage," p30, for a full discussion of the wonderful world of storage.) Removable storage has also gotten cheaper and more interesting, with CD-RW, DVD-RW, and USB keychain drives that make the floppy disk (which many PCers still use) officially look pathetic.

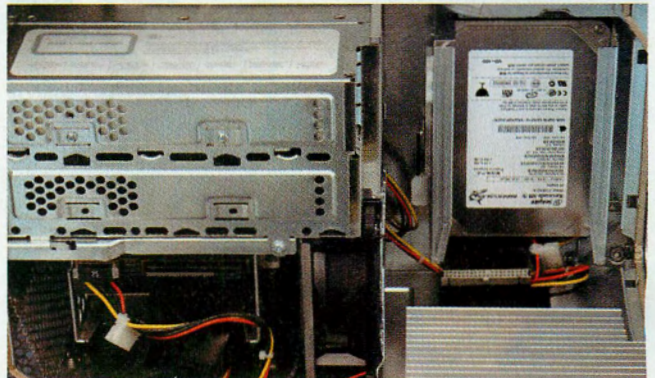
INTERNAL HARD DRIVES

Sure, you can opt for the many external FireWire and USB 2.0 hard drives out there when you update your hard drive. But for those of you who get a rush from opening up a Mac (and let's face it, that's what this article is all about, isn't it?), you must go internal. You have two choices when it comes to internal hard drives: You can replace your existing drive or add another one, either by slipping it into a free internal drive bay or by simply snapping it into a free PCI slot using a hard drive—equipped PCI card, such as one from Sonnet's nifty Tempo HD line.

SCSI and ATA

In most SCSI-based Macs, you can add another drive with no trouble. In some late-model Power Mac G3 and Power Mac G4 models, you can add one more ATA drive. If you're the lucky owner of the Mirrored Drive Door Power Mac, you can add three additional internal drives. If you want to add ATA drives to an older Mac or to a maxed-out Power Mac G3 or G4, you need a PCI card that offers ATA or high-speed SCSI support (see "Expansion Cards," p25, for more information).

Got a beige Power Mac G3? It has both an ATA internal drive and a SCSI cable for adding SCSI drives. Before that, most beige Macs (with the exception of some Performa models) were SCSI through and through. If your beige Mac needs some storage breathing room and you've got an available drive bay, try to track down a narrow (50-pin) SCSI drive. It's tough to find a true



If your Power Mac has a bracket for another drive, it can accept a second (and sometimes more) ATA drive without an add-on card.



50-pin drive these days—more often you'll find an 80-pin SCA (single connector attachment) drive with a 50-pin adapter; this works fine if your case isn't too tight for the adapter.

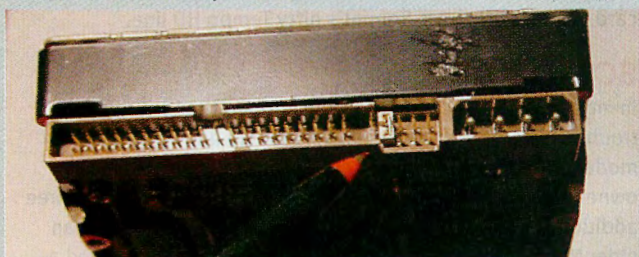
If you're planning to add a SCSI drive, you need to assign it a unique SCSI ID. You also need to terminate it if it's the last device in the chain—and no, we're not talking Schwarzenegger, we're talking flicking a termination switch or moving a jumper if you're lucky, or snapping on a resistor pack if you're not. An ATA device simply needs to be in either slave or master mode, depending on whether there's another master drive on that particular ATA bus. If there is, set the new ATA drive to be the slave drive.

By the way, ATA drives are almost completely backward compatible (except in some early Performa models)—for example, you can use an ATA/100 drive on an ATA/66 bus.

▶ HOW-TO Add a Second Drive

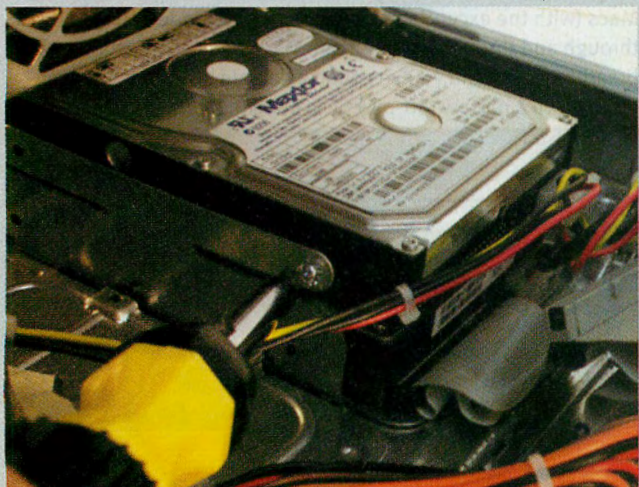
Adding a second hard drive is as easy as pie—eating it, not baking it.

- 1 Shut down your Mac, ground yourself, and open up your machine.
- 2 Set any jumpers or DIP switches on the drive, including termination, SCSI number, ATA slave-master mode, and so on. To get specifics on how to configure your jumpers or DIP switches, check with your drive manufacturer or read the manual.



Configure the jumpers as needed.

- 3 Locate an open bay, connect the power and drive interface cables to the drive, secure the drive, and start up your Mac.



Make sure your second drive is in place with its seat belt pulled tightly across its lap (that is, screw it in tightly).

PHOTOGRAPHY BY TODD STAUFFER

REMOVABLE DRIVES

Thanks to the proliferation of cheap FireWire drives and the popularity of CD and DVD, we've been able to give finicky storage media like the Jaz a happy (or unhappy, if you work for Iomega) sendoff. Since CD and DVD drives have become ubiquitous, you probably want to upgrade that old optical drive or add a second one. Although most of you will add these drives externally, Power Mac users can pop one into the extra drive bay that supports internal models.

If you are adding an internal drive, you need to connect it via either SCSI or ATAPI—the removable ATA standard. If you have a colorful Power Mac G3 or Power Mac G4, you can either swap out the current drive or add an ATAPI drive in its second drive bay (for instructions, see "Add Your Own SuperDrive," below). Older Macs generally support a SCSI device in their second, open drive bay. Again, for more information about removable-drive options and products, see "All About Storage," p30.

▶ HOW-TO Add Your Own SuperDrive

If you bought your Mac before the SuperDrive craze commenced, no worries. You can add your own SuperDrive, aka Pioneer DVR-A05 or DVR-105 (\$299.95, available from www.macsales.com). Unfortunately, this drive has a few quirks—for one, it can crash your Mac fairly regularly. Also, we recommend using the drive in OS 10.2.2 or later—OS 9 and this drive aren't exactly a match made in heaven.

Here's how the installation goes for a Blue-and-White G3 or Power Mac G4:

- 1 Shut down your Mac and ground yourself. Unplug the Mac, then open the case and locate the two plastic tabs that attach to the bezel covering your Mac's optical drives. Press inward on those tabs and then swing the bezel out and away from the Mac.



Remove the bezel that protects your optical drive.

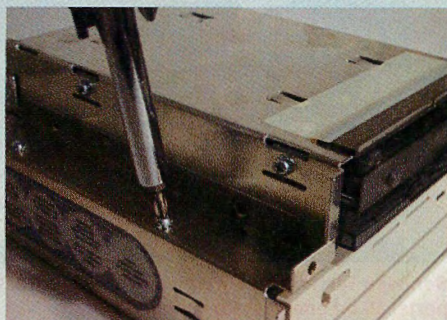
- 2 Remove the two retaining screws that hold the removable drive cage in place. Slide the cage out a bit, then disconnect the ribbon cable and power connector from the back of your optical drive. (Pull these connectors by their plastic bases, not by the cables themselves.) Now slide the entire cage out and place it upside-down on your table.



Remove the screws, or else you're screwed.

PHOTOGRAPHY BY TODD STAUFFER

3 Remove the screws that hold the existing CD/DVD drive in place, and then slide that drive out of the cage. Replace the old drive with the Pioneer one, using the same screws to secure it to the drive cage.



Release your old drive from its cage and replace it with the Pioneer.

4 Slide the drive cage partway back into the Mac and reconnect the cables. Slide the cage the rest of the way in and secure it with the retaining screws. Replace the bezel, close your Mac, plug it in, and start it up.



Connect your new drive and slide it into your Mac.

Your Mac should instantly recognize the Pioneer drive as a DVD-RW burner—pop in a disc and Disc Burner's dialog will appear in the Finder. What about giving your DVDs a pretty interface, you say? You can buy iDVD 3 as part of Apple's iLife (\$49, www.apple.com). Once installed, iDVD *should* work with the Pioneer drive—although Apple claims that it *shouldn't*. (We actually tested with iDVD 2.1, and it worked for us.) Now one caveat: We weren't able to test with iDVD 3, since it was released after press time. But we're hoping that iDVD 3 isn't *less* compatible.

A couple of tips: The Pioneer drive is a bit more of a headache in OS 9.x, and you may need to upgrade the drive's firmware to get around some Kernel Panic problems in OS X (but only if that firmware update comes out for Mac—Pioneer's most recent firmware updates just offer a PC updater). The current workaround for avoiding crashes is to turn off all Sleep mode functions in the Energy Saver pane. Also, if your Mac didn't have a DVD drive before you upgraded, you may have to run the Additional Packages installer on Disc 2 of the OS X CD to install your DVD player application.

A screenshot never lies: iDVD is burning a DVD movie via our self-installed Pioneer AO5. Too cool—we hope you're as lucky.



BUYER BEWARE POWER MAC 6400, 6500, AND TWENTIETH ANNIVERSARY MAC OWNERS

Some dual-port expansion cards are incompatible with these models, so consider a card that only offers one type of connector—although we'll wager that the majority of you aren't lucky Twentieth Anniversary Mac owners.

EXPANSION CARDS

Are you a beige Power Mac user with a serious serial and ADB complex? Then you're ripe for an upgrade. Pronto. Luckily, there's no shortage of PCI-based cards that allow you to add more ports to your Mac—whether those ports are FireWire (400 or in the near future, 800), USB (1.1 or 2.0), Ethernet, SCSI, or older serial ports.

Compatibility Issues

The trick with upgrade cards is compatibility. First, you need a card that works with the Mac OS version you're running. All of them require at least OS 8.6, and many cards fare better in OS 9.0.4 or later because of improved USB implementation. Most FireWire and USB cards are compatible with OS 10.1.5 or later native drivers, but in OS 9, you may need to install Apple's Adapter Card Support add-on drivers, which should be available from your card manufacturer or from Apple's support site (www.apple.com/support).

Cards that add USB 2.0 ports do exist, but we don't think they're all that useful unless you use external storage devices that you also want to plug into—ewwww—a PC.

Another reason to buy upgrade cards is so you can add internal disk-expansion capabilities. For instance, to add ATA/133 support, check out Sonnet Technologies' Tempo ATA133 card (\$99.95, www.sonnettech.com) or SIIG's UltraATA 133/100 Pro card (\$104.99, www.siig.com)—both allow you to add up to four snappy ATA/133 drives.

Non-PCI Macs

What about other Macs? In general, you can't deck out any iMac, eMac, or iBook with fancy cards—aside from an AirPort card. (Early iMacs don't have an AirPort slot, but slot-loading iMacs and iMac G4s do.)



SHOPPING LIST EXPANSION CARDS

If you're looking to add ports to your Mac, here are a few vendors that will help you out.

Adaptec (www.adaptec.com). If you need to add SCSI connectivity, Adaptec's your savior.

Belkin Components (www.belkin.com). Belkin offers FireWire and combo PCI and CardBus cards, along with all types of cables, hubs, and connectors.

logear (www.iogear.com). A good place for USB 2.0 and FireWire PCI and CardBus cards, as well as Bluetooth adapters.

Orange Micro (www.orangemicro.com). This company makes FireWire, USB-FireWire, and USB 2.0 cards in both PCI and CardBus varieties.

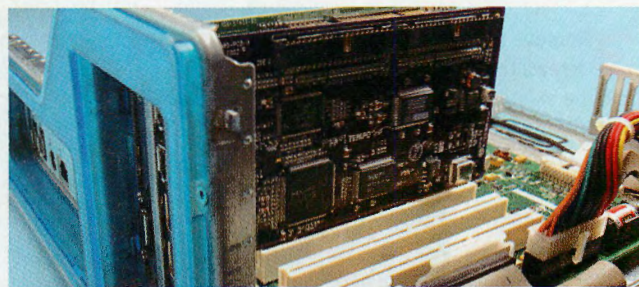
SIIG (www.siig.com). You can buy ATA/133 expansion cards here.

Sonnet Technologies (www.sonnettech.com). Sonnet offers a bevy of upgrade cards, including a combo card, the Tempo Trio, that includes USB 2.0, FireWire 400, and ATA/133; and a PCI hard-drive card, the Tempo HD.





If you have a PowerBook, though, you can upgrade it via its PC Card slot(s). PowerBook G4s generally have one slot (a Type II) whereas most PowerBook G3 models have two Type II or one Type III slot. (The type refers to the slot's height—Type III slots are bigger.) PC Card slots, particularly those that take CardBus cards, offer a great way to add all sorts of features, including networking connectivity, USB, FireWire, memory-card readers, and even Bluetooth. All PowerBook G3s (aside from the original PowerBook G3 3500 Kanga model) and PowerBook G4s support CardBus. ■



Sonnet's Tempo Trio card gives you FireWire, USB, and ATA/133 ports, all on one easy-to-install PCI card.

► HOW-TO Get to X

Say you've got a vintage PCI-based Power Mac and you're trying to upgrade it to OS X. Apple isn't supporting OS X on that machine, plus that old Mac doesn't have the muscle to run OS X anyway. Well, you *can* make the old dog learn a new trick, but for a price—your *soul*. OK, we're exaggerating. But you may need to be patient, because you're gonna see more crashing than usual.

1 Begin with the RAM. Ideally you want at least 256MB of RAM, and it'd be nice if it was in neat little modules all from the same Mac-friendly vendor. Note that some processor cards prefer that you toss any older RAM modules lower than 16MB in capacity, as they may not be fast enough for the processor upgrade you're going to make.

2 Upgrade the hard disk. You're going to need a lot of storage space for OS X—a simple installation takes up 1.5GB. Consider sticking with your Mac's native interface when choosing a new drive, which may mean adding or replacing a SCSI disk in your Mac. (If your Mac supports ATA natively, then...yippee!) Yeah, SCSI is more expensive, but the alternative is to introduce another variable (namely, a PCI card to support ATA hard drives) into the mix. If you do opt for an ATA card, verify that the vendor has certified it OS X compatible. (Some older cards aren't compatible, and some require firmware updates or similar tweaks to make them work with OS X.)

3 Format and partition. Format your drive in HFS+ (aka Hierarchical File System Plus, or Mac OS Extended format) with Apple's Drive Setup, just to get rid of third-party drivers that may not work with OS X. You may also want to partition the drive, especially if you plan to use the Classic mode. In that case, consider three partitions: one for OS 9.1 and your upgrade-enabler extension, one for OS X, and a third for OS 9.2.2 *without* the upgrade extension, which your Mac will use to run Classic.

4 Upgrade the processor. In a PCI-based Mac, you need special software to convince your processor upgrade to run OS X. And because of the driver software, OS X will be less stable and you'll have to depend on the manufacturer of your card for software that enables you to use newer versions of OS X. Suck it up. A processor upgrade is your only choice if you want to keep your dinosaur.

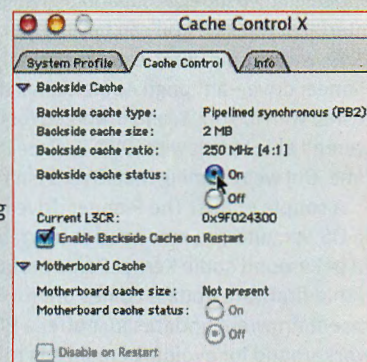
5 Install OS 9.1. Install OS 9.1 on your Mac for a Sonnet or PowerLogix upgrade, or the highest supported Mac OS prior to X for other upgrades.

6 Add USB. If you're running OS X on an old beige Power Mac, you probably want at least a USB card—OS X supports some ADB devices, but no serial devices other than modems.

7 Follow the enabler's instructions. If you're using a Sonnet card, install the Sonnet PCI X Installer (\$29.95, www.sonnettech.com/downloads/osx_upgrade_sw.html). For PowerLogix cards, install XPostFacto (free, or \$10 if you want tech support; <http://eshop.macsales.com/OSXCenter/XPostFacto>), an open-source solution for getting older Macs to run OS X.

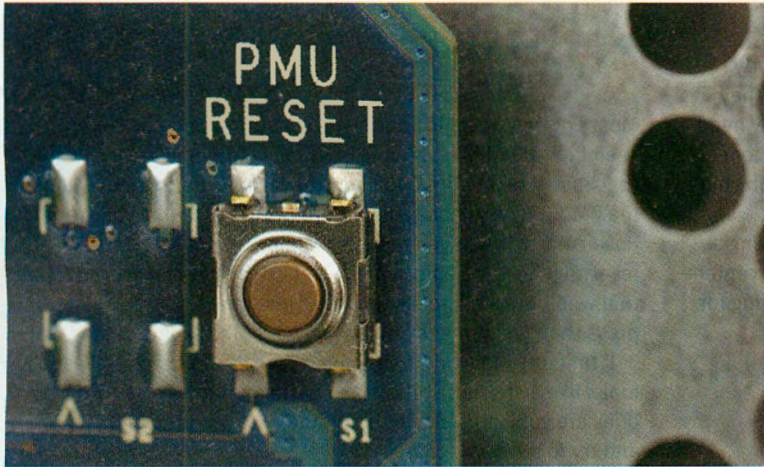
8 Install OS X. Once you've done the enabler's bidding, you should be able to install OS X.

9 Enable the cache. Turn on your Mac's L2 or backside cache. To do so, use Sonnet's X Tune-up or PowerLogix's CacheControl X (both free). Or check out L2CacheConfig (free, <http://eshop.macsales.com/OSXCenter/XPostFacto/framework.cfm?page=L2CacheConfig.html>). Once you've enabled the cache, you should be computing at full speed. Enjoy!



Here we're using PowerLogix's CacheControl to turn the backside cache off and on.

10 Check the support. When (OK, if) your Mac crashes, dig into the support FAQs and forums at both the manufacturer's sites and Accelerate Your Mac (www.xlr8yourmac.com), which does a great job of tracing the issues and problems with upgrade cards. Oh, and while you're at it, check for software-enabler updates every so often, particularly *before you update the Mac OS*. In fact, you might as well turn *off* the Software Update feature in System Preferences, since you need to install updates from your card manufacturer before installing any OS X updates.



It's probably happened to you: MacDeath. Your Mac won't start up, no matter how hard you punch the power button. Panic sets in. Visions of data you didn't back up rush through your head. You hyperventilate. You fear your life is over.

But wait! Before you start to weep inconsolably, take heart: There's plenty you can do to troubleshoot and repair your Mac. Oh, sure, your dead Mac *might* be permanently hosed. But it might *not* be. Here's a basic primer on how to troubleshoot major problem areas: your Mac, hard drive, and display. These tips may be basic, but they're what every Mac user should do before running to the local repair shop.

REPAIR 101

by Todd Stauffer

When Good Macs Go Bad

Although it's scary when your Mac refuses to start up, remember that the solution often doesn't have anything to do with the Mac itself. Perhaps you have a bad external drive plugged in. Maybe your video card came loose. Here are seven simple steps to help you home in on the problem.

1. Make sure your Mac is plugged in. "Well, duh," you say—but you shouldn't just assume your Mac's got juice. Pets, cleaning people, or your own twitchy feet can do funny things.

2. Check your keyboard.

Make sure your keyboard is plugged in—you may be trying to turn on your Mac from a power button that's not connected. Try the one located on your Mac. If your keyboard is plugged in and your Mac isn't responding, try *unplugging* the keyboard and restarting—your keyboard may be the problem.

3. Check your monitor.

If you can hear the disk, the fan, or the startup sound, but your screen is as black as a spammeister's soul, check the monitor connection. Open up your Mac and make sure the video card is securely seated in its slot (especially if you've



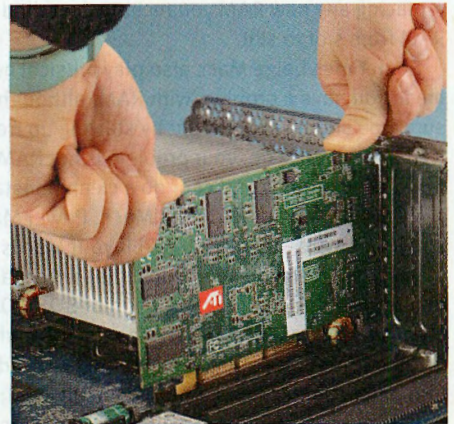
Sometimes keyboards do go bad and can prevent your Mac from starting up.

been digging around inside your Mac recently). If you haven't screwed down your card, a tug of the monitor cable may have worked it loose.

4. Check the external devices. Unplug everything and see if your Mac will start up. If it does, try plugging in your peripherals one by one and start up after each change to isolate the problem. Doesn't work? Try them in different ports.

5. Look inside.

Especially if you've just completed an upgrade, check the inside of your machine to make sure everything's cool. Check that RAM is seated properly, processor cards are installed correctly, and expansion cards are firmly set in their slots. Also, if you've recently installed a CPU



Make sure that all of your cards and RAM are seated correctly.

card, you may need to press the reset button found on many Power Mac motherboards (see "Perform a Serious Hardware Reset," p28).

6. Suspect your PRAM battery. If your Mac still won't start up, you might need to replace the PRAM battery. Also, some Macs encounter video trouble (the Mac starts up but you see nothing onscreen) when the PRAM battery is getting low. If this happens to you, you're one of the unlucky few (you might also want to avoid Vegas) who has an older Mac or Performa. Some pre-PowerPC Performas, AV Quadras, and members of the Power Mac 6100 series are particularly susceptible.



7. If you have a PowerBook or iBook, check its main battery. You may have a problem such as a poorly seated battery or one that can no longer hold a charge—they do poop out after a few years of hard work. Also, you may need to reset the Power Manager (see <http://docs.info.apple.com/article.html?artnum=14449> to find out how to do that on your particular laptop).

If none of these tips helps your cause, you may be having a power-supply problem. Head to a Mac-authorized repair center—and check whether your health plan covers grief counseling for when you receive the repair bill.

Strange Beeps & Sounds

We've become accustomed to the deep, rich startup tones that indicate your Mac is healthy, so it can be disconcerting when you hear weird beeping or other unfamiliar sounds (kinda like hearing Eminem when you're expecting John Denver).

A beeping Mac at startup *probably* indicates a problem with a RAM module that simply hasn't been properly installed or has worked its way loose. That may or may not be the case, but one can always hope, can't one?

➔ **Beige Macs** Instead of the startup chime, you might hear the sound of breaking glass. That means trouble with RAM—try replacing any new RAM you recently installed or swapping your RAM from slot to slot.

Sometimes beige Macs also play musical notes. That may mean you have a problem with RAM, although Apple says to make sure, you should experiment by starting up from your system CD. If your Mac starts up, your problem is not RAM, but the OS—troubleshoot for a conflict or do a clean reinstall of the Mac OS.

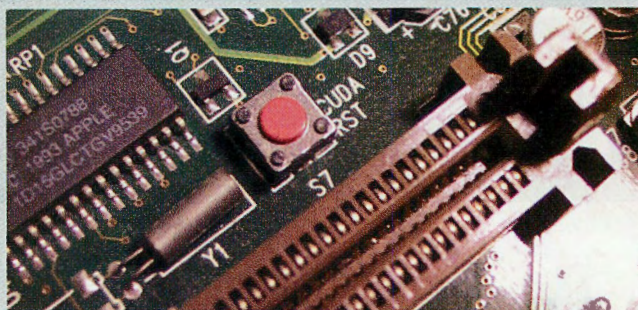
➔ **Early Colorful Macs** (iMacs, Power Mac G3s and G4s, and iBooks pre-October 1999) If your Mac is beeping on startup, it's trying to send you a message via the number of times it beeps (your Mac's version of SOS). One beep means the Mac thinks it has no RAM; two beeps mean the installed RAM is incompatible; three beeps mean the RAM didn't pass tests; four or five beeps mean a problem with ROM; and six beeps mean your internal AirPort card has been wirelessly autoupgraded to AirPort Extreme by Apple via IEEE-802.11m microwave transmissions. (Just kidding on the six-beeps thing. Wishful-thinking geek humor.)

➔ **Recent Macs** (iMacs, iBooks, eMacs, Power Macs, Xserve post-October 1999). Again, your machine is telling you what's wrong by the number of times it beeps. The first four sets of beeps mean the same as in the early colorful Macs (see above). However, five beeps mean the Mac either can't find or can't use the processor. Check to make sure your processor card or socketed CPU is installed correctly.

▶ HOW TO Perform a Serious Hardware Reset

Most Power Mac logic boards have a button that can cure seemingly dead Macs. Apple originally dubbed it the Cuda button (because it resets the Cuda controller chip), but started calling it the PMU (power management unit) button with the AGP graphics Power Macs. When you replace a major component in your Mac, resetting the Cuda chip is often a good idea and can bring a Mac that won't power up back to life. To reset the Cuda chip, simply press that eensy-teensy button on your Mac's logic board.

If that doesn't work, try removing the PRAM battery (it usually looks like a shorter, stubbier AA battery, although some older ones are cubical). Take it out for about 10 minutes, put it back in, and try to start up again.



Pressing the Cuda button (which is often red) may restore life to your Mac.

PHOTOGRAPH BY TODD STAUFFER

Dangerous Driving

The fact that hard drives have moving parts, build up heat, and have MTBF (mean time between failure) ratings means that eventually every single one of them will die. The best solution to a dead hard drive is a regular backup plan—use software such as Backup from Apple's online .Mac service, the powerful Retrospect from Dantz (\$49 to \$129, www.dantz.com), or LaCie's simple SilverKeeper (free, www.silverkeeper.com). For more tips on backing up, see "All About Storage," p30.

If your hard disk isn't quite dead but is acting as erratically as a freshman at his first frat party, back up your data immediately. Then test the drive's directory structure using Apple Disk Utility's First Aid feature (OS X) or Disk First Aid (OS 9 and earlier)—a more powerful diagnostic tool such as Disk Doctor, part of Norton Utilities (\$99, www.symantec.com), can sniff out additional signs of impending doom. If your drive's data directories aren't the problem, then software such as Drive 10 (\$69.95) or TechTool Pro (\$97.98) from Micromat (www.micromat.com) can perform some important hardware tests without destroying data. (For more on how disk utilities work, see "Be Prepared," Mar/03, p36.)

If your drive appears to have hardware issues and you're feeling either broke or lucky, one option is to reformat it, either with Apple's own Disk Utility or Drive Setup or with a third-party utility. During a low-level formatting process, the software will map out the drive's bad sectors so they won't be used for storing

Sometimes the PRAM battery itself can give you trouble—they're liable to go bad after three or four years of operation. Any authorized Mac dealer can sell you a replacement. Symptoms of a bad PRAM battery include odd clock behavior (your Mac suddenly thinks it's still in the Nixon administration) or trouble maintaining settings (your Mac can't keep track of whether AppleTalk is turned on, for example). Replace the battery just as you would the one in your smoke alarm—remove the original and snap in the replacement.



Removing the PRAM battery for a while can resuscitate your Mac—sometimes.

data, thus avoiding potential corruption. It's sort of like joining the Merchant Marines to get out of the old 'hood and away from Uncle Vito and the Family—you'll never be completely free of them (or of disk corruption), but at least you'll save your sanity (or data) in the meantime.

Unaffectionate Displays

Displays can do strange things sometimes. Some of the problems are easy to fix; others mean your monitor is going the way of free Apple email. If you don't get the picture, troubleshoot using these six steps:

1. Check your cables. Make sure that the display is plugged in and connected to your Mac's video output, and that your Mac is running. If this solves your problem, buy a Lotto ticket—you're one lucky ducky.

2. Force a restart. If you've changed screen resolutions or your Mac appears to be running but no image appears onscreen, try pressing the power button on your keyboard or on your Mac, then pressing the R key. On most Macs, this causes a restart. When your Mac restarts, it should sense the display card's properties ("Captain, I sense a flat-panel display...with a deep yearning") and start up in a compatible resolution.

3. Reset your Mac—hard. Press the reset button or hold down your Mac's power button for 10 seconds to hard-reset your Mac. Then zap your PRAM by holding down Command-Option-P-R immediately after hearing the startup chord. Hold that pose until you've heard the startup sound at least two more times. Release the keys and your Mac will start up again—and hopefully the display will spring to life.

4. Swap cards. If you have more than one video card, or if you've recently installed a new card, try removing the new or second card and testing with your original video card. Also, move your card to a different PCI slot (only if your video card is PCI, obviously).

5. Replace the PRAM battery. Apple notes that a dead PRAM battery can affect video, particularly in the Power Mac 6100 series. You won't see an image even though you'll hear the Mac itself whir to life.

6. Try different power sources. If your monitor is not giving off any light or sound, try a different power cable and plug the display into different wall outlets. Don't laugh—this actually works. Occasionally.

If none of these tactics brings your display back to life, take it in for repairs. Sorry.


CRT Woes

If you still have your Mac hooked up to one of those 50-pound cathode-ray-tube dealers that Steve has declared passé, you may experience certain image issues. Luckily, you can take care of many problems yourself.

A wavy or muddled picture can sometimes be the result of magnetic interference—try moving audio speakers, phones, and other monitors away from your display. Also, certain CRTs have a north-south or east-west orientation; if the screen is splotchy or wavy, rotate your display—um, and your desk and chair—90 degrees and see if that improves the picture. Seriously.

Magnetic buildup may cause a splotchy, wavy, blurry display. You can combat it with your display's built-in *degaussing* feature; check your manual to find out how to use it. (CRT iMacs, by the way, degauss automatically at startup.) If the symptoms get really bad, take your monitor to a repair shop and get it degaussed with special tools to remove built-up magnetic mojo.

An off-center or out-of-square image is the result of poor display *geometry*. A blurry image (aka a focus problem) can be caused by lousy *convergence*—how well aimed a CRT's electron guns are when they shoot their electron beams at the inside of your CRT's glass screen. To fix either problem, use your display's geometry and convergence (or focus) controls; to find these controls, RTFM (nerdspeak for "read the...uh...friendly manual"). If your CRT doesn't have digital-convergence controls, look for an external control somewhere on the case that you can adjust with a thin flathead screwdriver. *Never* open a CRT's case and muck about inside—even when unplugged, there are charges inside powerful enough to kill you.

All fixed? Now don't you feel just a wee bit more in control of the universe? 



Todd Stauffer has been writing about using and fixing Macs for nearly ten years—and no, he won't repair your copier.



OK, you just managed to squeeze that gargantuan Jaguar installation onto your hard drive by deleting a few albums' worth of MP3s and uninstalling a couple of apps you use only a few times a month. You're done—for now. Or at least until you want to rip that new album you bought. Or until the next time Apple releases one of its 1GB-plus OS updates.

Instead of juggling what little space you have, it's time to give your Mac a little more breathing room. Storage has become cheaper, faster, and more capacious than ever, and your options are vast. So no more excuses—it's time to add those much-needed gigabytes.

ALL ABOUT STORAGE

by Jeffy Milstead

Internal Storage

When you first got your Mac, you probably thought you would never run out of room (10 gigs—cool!). But everyone eventually does run out of space—the key is to upgrade before you find yourself with only 100 free megs. Waiting until your drive is nearly full is begging for trouble: Your system becomes sluggish, and you'll find yourself juggling files and apps just to squeeze a small system update onto your drive.

There are many reasons to upgrade your Mac's internal storage besides giving yourself more breathing room for all your junk—er,

uh, important files. For example, you can keep your Classic system folder on a completely separate internal drive. If you've ever done system maintenance, you know that reformatting or repartitioning is a whole lot easier when you have a separate emergency drive from which to boot. (To find out how to install a second hard drive, see "Supercharge Your Mac," p19.)

WHAT DRIVES A HARD DRIVE

While capacity is the major concern of most hard-drive seekers, speed is also important—and not just because you can brag to your friends that you have a faster drive than they do. Three factors affect performance:

1. Areal density Areal density refers to the number of



WHAT TO WATCH FOR

1 Observe proper grounding techniques, and jot down the current jumper settings for the drive inside your Mac before adding any new drives. Each ATA port can support a maximum of two drives per cable, and you must set the configuration jumper on each drive to either *master* or *slave* mode. If your spiffy new drive isn't showing up on your desktop, you've probably set the master-slave jumpers incorrectly.

2 Note that beginning with the Mirrored Drive Door G4s, Apple switched to a simpler system, configuring all drives to use the cable-select jumper, which sets up the master-slave relationship automatically.

bits of data that a platter can store per square inch. As drive manufacturers learn to pack the same disk surface with tighter magnetic transitions, areal density will increase. And if data is more densely packed, it streams off the drive at a faster rate.

2. Seek time Seek time refers to how quickly the drive can position the read-write head over a given location on the disk surface.

3. Rotational speed Midrange consumer drives tend to run at 5,400 rpm, with higher-performance drives spinning at 7,200, 10,500, and even 15,000 rpm. In contrast, the smaller, quieter, and more power-conscious portable 2.5-inch drives found in laptops tend to run at 4,200 rpm and below.

Like processors, hard drives contain some amount of on-board cache, which is essentially RAM built into the drive to help it transfer data quickly to your Mac.

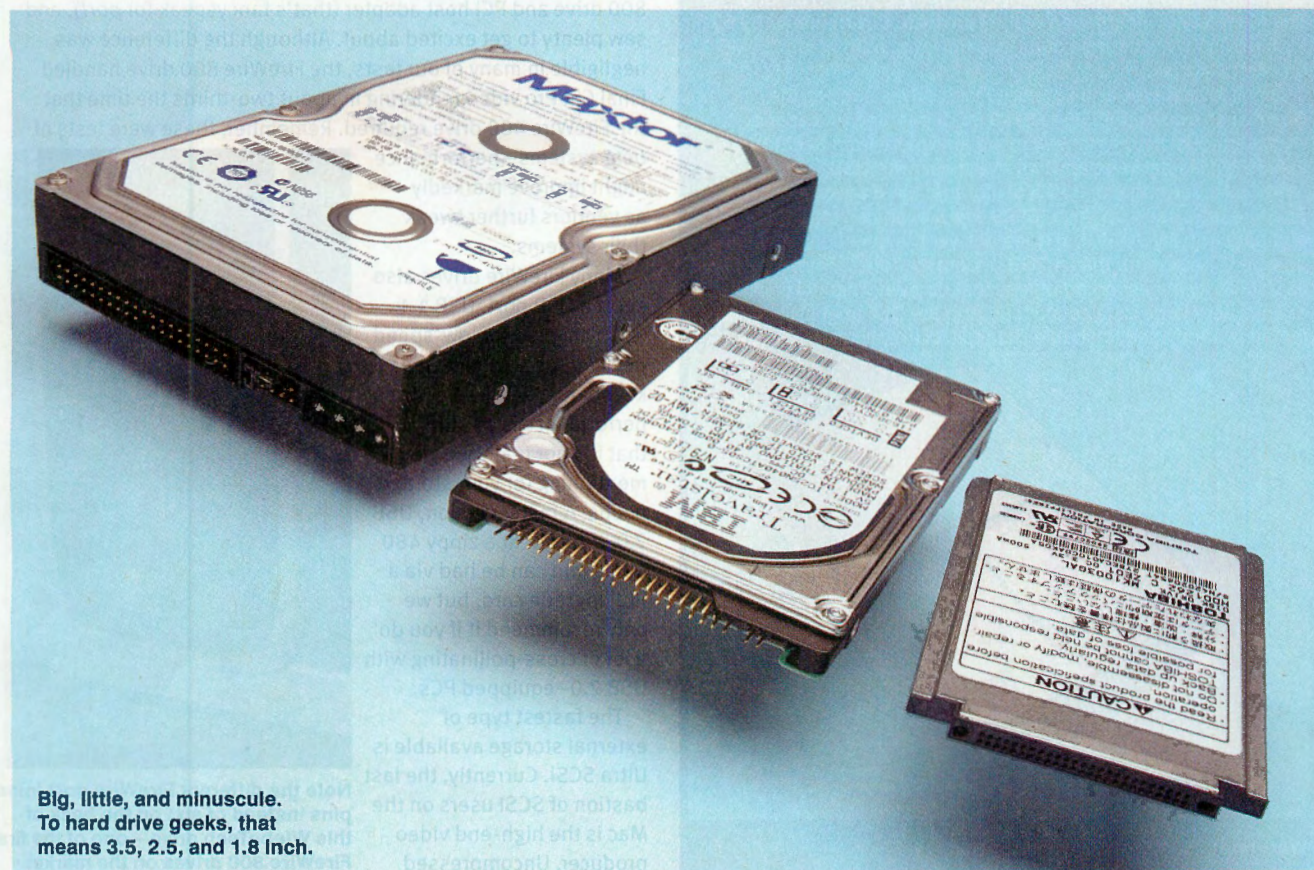
BUY SMART, NOT CHEAP

When you're buying a drive, common sense tells you to buy the highest capacity for the least amount of money. Even though speed is probably a secondary concern for most of you, it's something to consider. Sheer rpm translates to faster performance—a 10,000-rpm SCSI drive turned in the speediest numbers compared with the single 7,200-rpm drives we tested (see "The Good, the Bad, and the SCSI," p37). All else being equal, a higher-capacity drive is faster due to its higher areal density—the more bits per inch, the faster a hard drive's read-write head can suck 'em up. You pay for capacity, and you get extra speed for free. So Mom was wrong—you *can* get something for nothing. Sort of.

Digital-video pros are special cases. If you're a DV user, then ponying up for a pair of 200GB drives means you can capture and edit an additional 30 hours of footage without worrying about hitting your head against the top of the disk. A single DV data stream is only 3.6 MBps and doesn't put great demands on performance—most drives are up to the task.

Serious musicians using apps like Pro Tools also have beefy storage requirements—one track containing a minute of CD-quality audio (44KHz, 16 bit) takes up 5MB of disk space. Most professional productions consist of 48 or more tracks—and of course, most songs are longer than a minute (sometimes much to our chagrin).

Power Macs offer the best options for upgrading storage, since they come with extra internal power connections and



Big, little, and minuscule.
To hard drive geeks, that
means 3.5, 2.5, and 1.8 inch.



space to mount additional drives. Older Power Macs, such as the Blue-and-White G3 and earlier G4s, have an ATA/66 port. Recent Power Macs (everything from the Mirrored Drive Door models onward) come with an ATA/100 port.

Since most drives these days run faster than ATA/66, you waste performance potential when running a new drive in an older machine. You can, however, add dual ATA/133 ports by installing a PCI card such as Sonnet's Tempo Trio—but when we tested the Trio, we saw little or no improvement over the built-in ATA/100 ports of our Mirrored Drive Door G4. To be fair, though, the Trio is really meant to upgrade older ATA/66-equipped PCI Macs or to stuff multiple pairs of drives into older machines.

PowerBook users are stuck with 2.5-inch drives, which topped out at 60GB at press time but are due to go up to 80GB right...about...now. You *can*—with effort—upgrade your laptop's internal drive, but you might be better off buying a less-expensive 3.5-inch external drive instead and spending the time playing Tony Hawk or another game o' choice.

ALTERNATIVE-SCENE STORAGE

Hard drives and CD-RWs aren't the only games in town. Other types of storage may be just what you need. For example, while CD burners have eroded the Zip's popularity, you can usually count on a service bureau's having a Zip drive kicking around. The most recent incarnation of the **Iomega Zip drive** (\$199.99 for FireWire, www.iomega.com; see *Reviews*, p58) holds 750MB on each \$13 disk.

Small is beautiful, and key-size Flash drives such as the **Sonnet Piccolo** (\$39.95 to \$149.95 depending on capacity, www.sonnettech.com) let you move anywhere from 32MB to 256MB of files between any two machines with USB.

At \$69 a cartridge for 33GB of storage, the **Exabyte VXA-1** FireWire tape back-up drive (\$999, www.exabyte.com) doesn't compete with DVD-RW, but does answer the question "What do I do when I have more than 4.7GB of data to store?" Tape maintains its popularity in networked offices that do heavy nightly backups, or anywhere large data sets occur. And the DLT (digital linear tape) format is often used to shuttle data to DVD-replication houses.



Woo-hoo! 750MB of Zip-ity doo-disc.

External Storage

Apple has made expanding your Mac a breeze by equipping all recent models with FireWire, and has upped the performance ante by adding FireWire 800 (aka IEEE-1394b)—which theoretically doubles FireWire performance from 400 to 800 Mbps—to its latest PowerBooks and Power Macs. If you have an older, pre-FireWire Mac, don't worry—you can easily bring your Mac up to snuff by installing a FireWire PCI card in a desktop Mac (see "Supercharge Your Mac" p19) or a PCMCIA FireWire card in an older PowerBook. But FireWire's not your only option.

CONNECTION CONUNDRUM

Strictly speaking, true FireWire hard drives don't exist—the ones sold today consist of an ATA drive glued to an ATA-to-FireWire interface or bridge, with a snazzy-looking case wrapped around the whole shebang. Most FireWire 400 drives use Oxford Semiconductor's 911 bridge, but vendors are busily readying drives based on the Oxford 922 bridge chip, which is compatible with the updated FireWire 800 spec.

So is FireWire 800 really all that and a bag of doughnuts? Well, we got our hands on a WiebeTech preproduction FireWire 800 drive and PCI host adapter (that's fancyspeak for *port*), and saw plenty to get excited about. Although the difference was negligible in many of our tests, the FireWire 800 drive handled Final Cut Pro video rendering in about two-thirds the time that the FireWire 400 drive required. Remember, these were tests of *beta* systems—performance might improve markedly as vendors further tweak their systems.

Many FireWire drives also sport a USB port. USB 1.1 was designed for low-speed devices such as mice and keyboards, and its 12-Mbps performance is so slow that it's not really worth mentioning for your storage needs. A faster version, USB 2.0, tops out at a zippy 480 Mbps and can be had via a PCI upgrade card, but we only recommend it if you do a lot of cross-pollinating with USB 2.0-equipped PCs.

The fastest type of external storage available is Ultra SCSI. Currently, the last bastion of SCSI users on the Mac is the high-end video producer. Uncompressed

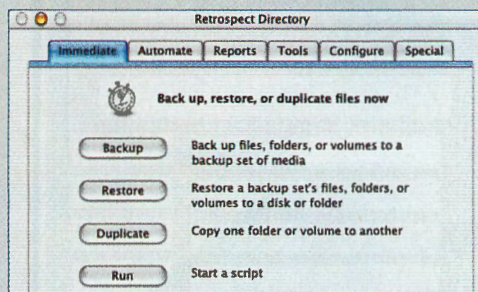


Note the different FireWire port (nine pins instead of six) on the back of this WiebeTech drive—one of the first FireWire 800 drives on the market.

▶ HOW-TO BACK UP WITH RETROSPECT

Although Retrospect suffers from dialog-itis, it is the preeminent backup application for the Mac. For those who are panic-stricken (and those who should be), here's how to do your very first Retrospect backup to CD:

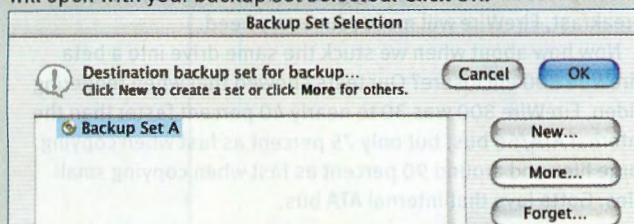
1 If you're using an external CD-RW drive, make sure it's connected and on. Open Retrospect and click the Backup button.



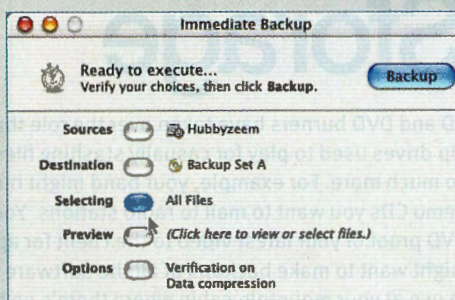
2 Select the Volume you want to back up and click OK. Choose the Backup Set Type (in our case, we're backing up to CD). Click the New button.



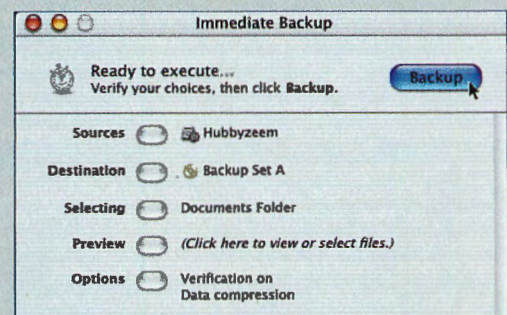
3 Save the backup set somewhere safe. This is a catalog of the files you're about to back up, and Retrospect will need it if you want to retrieve something from the backup CD. A dialog will open with your backup set selected. Click OK.



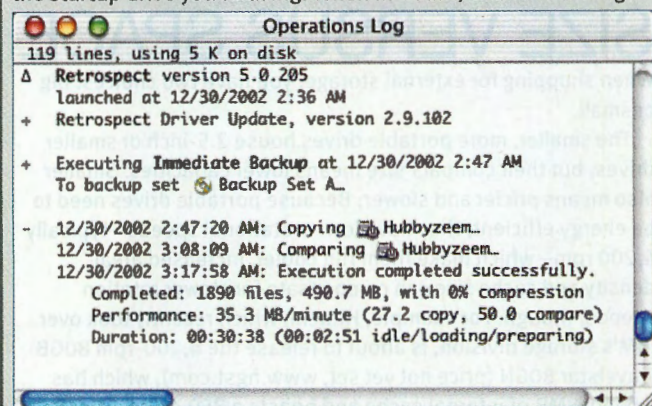
4 By default, Retrospect will try to back up all files. Since we're Very Important People and in a hurry, we only wanted to back up our Documents Folder. Click the Selecting button, which will allow you to select Documents Folder from a pop-up menu.



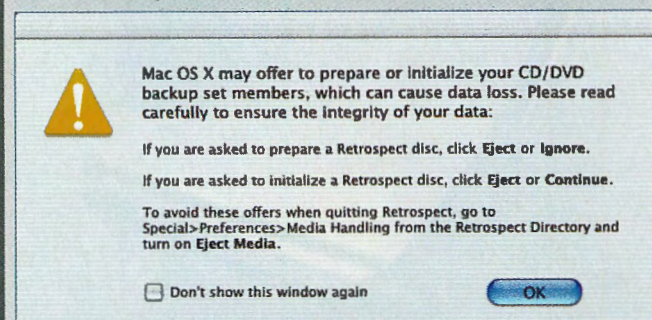
5 You're now ready for takeoff—we mean backup. Click the Backup button. Retrospect begins by scanning the files on your hard drive, then asks for blank media. Insert a CD, then click Proceed.



6 If you run into errors, press Command-L to bring up the Operations Log for more details. Remember that Retrospect will generate errors if you're trying to back up files that have changed since you began the backup, such as preference files on the startup drive you're using. When in doubt, examine the log.



7 Retrospect presents this warning at the end of the backup. Because Retrospect uses its own format, which the Finder doesn't recognize, the Mac will try (incorrectly) to format your freshly written backup. If you use CD-RW, clicking the wrong button means you have to start all over.



⚡ WHAT TO WATCH FOR

1 External drives usually come with their own power connection, although many smaller portable FireWire drives draw their power through the FireWire cable—a trick very few USB 2.0 drives can accomplish. While this method is great for eliminating cable clutter, beware of chaining multiple drives together, as the additional power draw can overwhelm your Mac's power supply, which may result in a potentially expensive repair job.

As for performance, there's no noticeable speed hit when you daisy-chain FireWire drives. However, if you're setting up a dual-drive software FireWire RAID and you want to get the fastest speed possible, plug each drive into its own FireWire port on your Mac.

2 You can hot-plug FireWire drives just as you can USB drives. That is, you can attach and remove them without first shutting down your Mac. But first remember to eject any FireWire volumes before physically yanking out the FireWire cable—otherwise you risk crashing your Mac and corrupting your data.

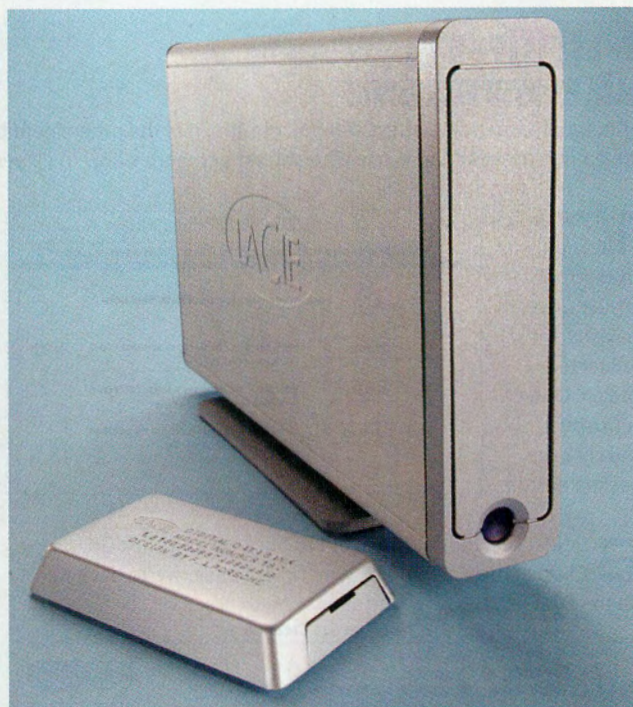
3 If you plan to move your FireWire drive between Windows XP and Mac OS X, format the drive into FAT32 partitions in Windows XP and divide it into 30GB chunks to keep finicky XP happy—your Mac's smart enough to recognize the drive.

➔ video gobbles up a whopping 25 to 30 MBps, and editing HDTV streams can demand throughput of 120 MBps or more. People who deal in high-end video typically need a dedicated array of Ultra SCSI disks.

SIZE VERSUS SPACE

When shopping for external storage, you have two choices: big or small.

The smaller, more portable drives house 2.5-inch or smaller drives, but their compact size means lower capacities. Smaller also means pricier and slower: Because portable drives need to be energy efficient, they have lower rotational speeds—typically 4,200 rpm—which make them run cooler. Increased areal density and cache size can compensate for slower rotation speeds, though. For example, Hitachi, which recently took over IBM's storage division, is about to release the 4,200-rpm 80GB Travelstar 80GN (price not yet set, www.hgst.com), which has a beefy 8MB of internal cache and boasts a 350-Mbps transfer rate—impressive compared with other 2.5-inch drives, which typically fall in the range of 250 to 300 Mbps. And if you're looking to go reeeeeeeally small, the stylin' LaCie Data Bank (\$299, www.lacie.com) houses the same 1.8-inch Toshiba



LaCie covers both ends of the size spectrum with its teensy 20GB Data Bank (\$299, www.lacie.com) and tyrannosaurus-size Big Disk, which couples two 250MB 3.5-inch drives for a total of 500MB of storage (\$949, www.lacie.com).

drive that's in Apple's iPod and gives you 20GB in a magnesium FireWire 400 and USB 2.0-equipped case.

External drives are easy to use and perform decently, but you don't get something for nothing. To see what effect a FireWire bridge has on performance, we tested a 200GB 7,200-rpm drive from Western Digital (\$399.99, www.westerndigital.com) on the internal ATA/66 bus of our test Mac and in an external FireWire 400 case, and discovered that the drive was 6 to 30 percent slower when in the case. But unless you're a hard-core uncompressed-video-editing geek who eats terabytes for breakfast, FireWire will meet your every need.

Now how about when we stuck the same drive into a beta FireWire 800 enclosure? Our tests showed that when rendering video, FireWire 800 was 30 to nearly 40 percent faster than the internal ATA/66 bus, but only 75 percent as fast when copying large files and around 90 percent as fast when copying small files. Gotta love that internal ATA bus.

Optical Storage

CD and DVD burners have taken over the role that floppies and Zip drives used to play for casually stashing files—but they do so much more. For example, your band might burn a bunch of demo CDs you want to mail to radio stations. You might send a DVD proof of your latest video to the client for approval. You also might want to make backups of all the software you legally own to use at your mountain cabin where there's no broadband (hey, it could happen).



We tested this Western Digital drive in this FireWire 400 enclosure, on an ATA/66 bus, and in a FireWire 800 enclosure.

⚡ WHAT TO WATCH FOR

1 Waiting for even faster CD burners? Well, don't. Most optical vendors say CD speeds won't be pushing much beyond 52X. In an effort to squeeze every last bit of performance out of CD drives, drive vendors must now spin the CD so fast that speeds at the CD's edge reach 150 to 200 mph. If you insert an old, brittle CD that has microscopic cracks, spinning it at that speed can cause it to fly apart, destroying the drive along with it—although that might be fun to watch...

2 For the bargain hunter with an older, non-FireWire machine, an internal CD upgrade can be attractive, but also a mixed bag—your Mac may not support the latest bargain CD-RW mechanisms. Check the drive-compatibility database on AccelerateYourMac (<http://xlr8yourmac.com>), or you may be stuck with a CD-burning speed demon that fails to boot your Mac in an emergency.

3 Don't forget that recordable-CD media is sold in different speeds, and you should match its speed to your drive's for best performance.

DVD OR CD?

The biggest consideration in buying an optical drive is whether you want to make DVDs or whether you'll be satisfied with CDs.

Right now, the fastest CD burner available is 52X/24X/52X (the three speeds correlate to write/rewrite/read). Sure, DVD-R drives can burn CDs, but they tend to be slower on the CD-burning side, so avoid them if you're not planning on making DVDs.

Want proof? We compared a Plextor PlexWriter 48X/24X/48X internal drive (\$130, www.plextor.com) to the 8X/4X/24X SuperDrive in our dual-gigahertz G4 and found that the Plextor cut CD-R burning time in half. The Plextor also kicked the SuperDrive's SuperButt in CD-RW performance, burning a rewritable disc about 3.5 times faster.

Meanwhile, if you want to burn DVD-Rs, may you have a lot of patience and time. The original Mirrored Drive Door dual-gig G4 with its Pioneer A04 SuperDrive boasts an unwhopping 2X DVD-R burn speed, and it took us 54.5 minutes to burn and verify a DVD. We haven't yet got our hands on the latest Mirrored Drive Door beasts, which come with a Pioneer A05 SuperDrive that writes DVD-R discs at 4X speed, but we assume it'll be about twice as fast. Yep, that's why we get paid the big bucks.

Optical drives come in internal and external models, but unless you've done your homework and like to tinker, external is the way to go. (If you fall into the aforementioned tinkerer category, see "Supercharge Your Mac," p19, to find out how to install an internal Pioneer "SuperDrive.")



DVD burners like the Formac Devideon (\$399, www.formac.com; see *Reviews*, p54) are picking up in popularity—but their CD-burning speeds are still quite sad.

SHOP AROUND THE CLOCK

There are more companies that make storage products than you have fingers to count them on.

ATTO, www.attotech.com

Maker of high-performance single- and dual-channel UltraSCSI 320 64-bit PCI interface cards and OS X RAID software.

Formac, www.formac.com

Specializes in sleek-looking CD-RW and DVD drives for the Mac. Its Devideon drive (see *Reviews*, p54) includes proprietary DVD-authoring software.

Hitachi, www.hgst.com

Took over IBM's hard-drive line. Manufacturer of high-performance 2.5- and 3.5-inch drives, including the Travelstar line.

Iomega, www.iomega.com

Inventor of Zip and Jaz. Also sells portable FireWire drives.

LaCie, www.lacie.com

Makes sturdy FireWire hard drives and optical storage with cool industrial designs. Its Big Disk line combines two high-capacity mechanisms into one volume in one cabinet (see *Reviews*, p58), and its Data Bank contains an itty-bitty drive in a sleek magnesium case.

Maxtor, www.maxtor.com

Supplier of low-cost, high-quality hard-drive mechanisms for the desktop. Maker of OneTouch Personal Storage external FireWire drives for easy backup (see *Reviews*, Feb/03, p44).

Medea, www.medeia.com

Manufacturer of preconfigured RAID arrays.

Other World Computing, www.macsales.com

Specializes in Mac storage, including bare internal mechanisms for laptops and desktops as well as finished FireWire optical and magnetic drives.

Pioneer, www.pioneerelectronics.com

Supplier of the DVD-R mechanisms in iMacs and Power Macs.

Plextor, www.plextor.com

Manufacturer of CD-RWs. First to debut the buffer-underrun feature.

Seagate Technology, www.seagate.com

A leader in high-performance UltraSCSI mechanisms.

SmartDisk, www.smartdisk.com

Producer of FireWire and USB drives, including FireWire 800 products.

Sonnet Technologies, www.sonnettech.com

Specializes in Mac upgrades, including ATA/133 PCI cards. Also offers the Tempo HD line of PCI card-based hard drives.

Sony, www.sony.com

First to introduce a DVD burner compatible with competing DVD-RW and DVD+RW standards.

TDK, www.tdk.com

Creator of veloCD CD-R burner, and DVD and CD media.

Toshiba, www.toshiba.com

Maker of 2.5-inch upgrade hard-drive mechanisms for PowerBooks and the 1.8 hard drives in the iPod and external drives from SmartDisk and LaCie.

Western Digital, www.westerndigital.com

Major manufacturer of desktop-drive mechanisms.

WiebeTech, www.wiebetech.com

Specializes in portable FireWire storage enclosures, including ones with FireWire 800 support.

RAID

RAID, an acronym for *redundant array of inexpensive disks* (though some claim it stands for *redundant array of independent drives*—but can't we all just get along?), is a way of combining several drives. Most home users don't really have any reason to use a RAID (unless it's of the bug-killing variety), but for professionals who deal in high-end video or audio, it can be a lifesaver.

MIRROR OR STRIPE?

There are several types of RAID arrays, the most common being RAID levels 0 and 1. RAID 0 provides *data striping*, which splits your files equally across all drives. Because your Mac accesses the drives in tandem, a RAID 0 array can work blazingly fast. In RAID 1, or *mirroring*, each drive keeps a duplicate of each file. If one drive fails, you can quickly switch to the other with minimal downtime. However, a RAID 1 array can run significantly slower than even a single drive.

So is RAID worth it? It depends. Check out "How Fast," p37, for the wild 'n' wacky results of our RAID testing. But even after wading through all the data, the question remains: Which type of RAID array is right for you? That depends on who you are. High-end DV people use striped RAID arrays for editing

WHAT TO WATCH FOR

1 The main hazard of using RAID 0 is that because data is striped among drives, if one drive goes south, all of your data goes with it. The problem with mirroring—RAID 1—is that you have a fraction of the space available that you do with striping, since your setup is duplicating data across multiple drives.

2 One drawback of Apple's RAID setup is that you cannot boot from a RAID volume. SoftRAID to the rescue! Shipping in April, SoftRAID 3 (\$149, www.softraid.com) for OS X will offer a host of features beyond what Apple gives you, including RAID 0 on the boot volume, I/O error reporting, and remote administration from the command line.

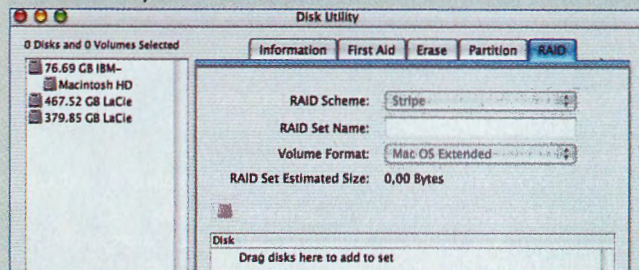
uncompressed video streams, and professional sound designers use a fast UltraSCSI RAID array for performing nondestructive edits on their mixes of 128 audio tracks. An IT manager might install a mirrored RAID 1 array on a company server to decrease system downtime.

If you've got a spare \$5,999 or more, consider one of the new Apple Xserve RAIDs, which come in a 3U rack-optimized enclosure. There are three models—the low end comes with four drives for up to 720GB of storage. And for a mere \$10,999, the high end comes with 14 drives for up to 2.52TB. Each features dual independent controllers for redundant storage and a dual 2Gb Fibre Channel interface that allows for up to 400 MBps throughput. Of course, you also need an Apple Fibre Channel PCI card to plug these babies in—but what's another \$499?

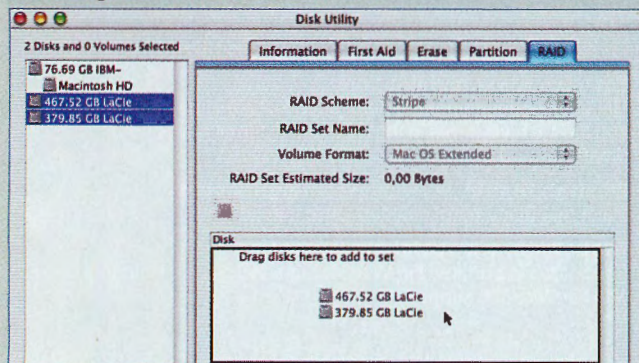
HOW-TO SET UP A RAID ARRAY

Building a RAID array with Mac OS X Disk Utility (which is included in Mac OS X) takes just a few simple steps.

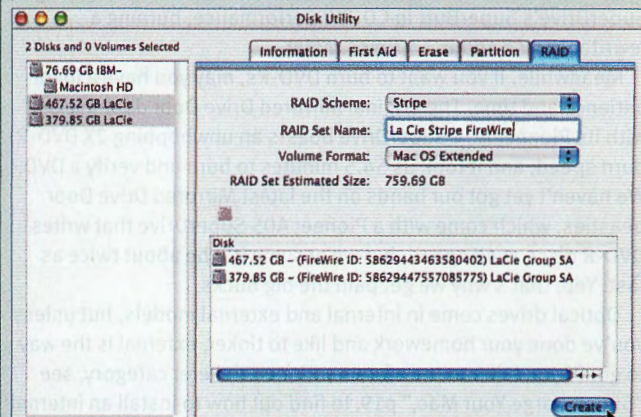
- 1 Make sure your drives are connected and powered on. Fire up Disk Utility and click the RAID tab.



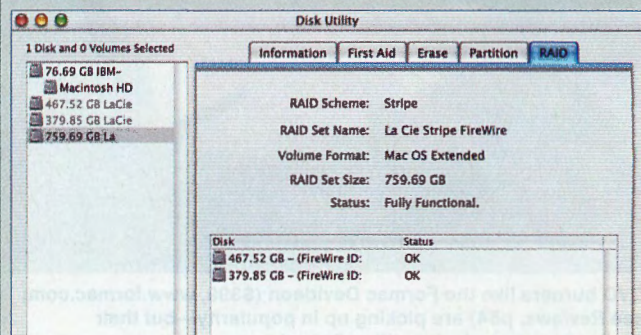
- 2 Shift-select the drives you want to add to the RAID set and drag them into the center window.



- 3 Select your desired RAID Scheme (either Stripe or Mirror) and Volume Format from the pop-up menus, type a name into the RAID Set Name field, and click Create.



- 4 Like magic, your two drives have merged into a single faster volume. We used FireWire in this example, but you can use ATA and SCSI drives as well.




HOW FAST?

Theoretically, the answer to the question "How do RAID arrays perform?" should be simple: Striped RAID 0 arrays should be faster than single hard drives, and mirrored RAID 1 arrays should be slower. Ah, if life were only that straightforward.

We compared the 80GB 7,200-rpm IBM hard drive that came with our dual-1GHz Mirrored Drive Door Power Mac with an internal RAID 0 setup we created by coupling two 200GB 7,200-rpm Maxtor DiamondMax Plus 9 hard drives (\$291 from www.emicroworld.com) on an ATA/100 bus with OS X's Disk Utility software. Large files copied to the RAID 0 drives only 10 percent faster than to the stock drive; small files, however, zipped along over 30 percent faster. (Oddly enough, the performance gains were almost identical when we moved the RAID 0 drives to the internal ATA/66 bus.) However, when we clocked the RAID setup against the stock drive using Pinnacle's DiskPerformance utility—designed to test drives for use with Pinnacle's high-end CinéWave video-editing card—the RAID array trounced the stock drive with 75 percent faster read throughput and 140 percent faster write throughput.

Things changed when we moved the RAID outside the Mac. When we connected two LaCie Big Disk drives—500GB and 400GB (\$949 and \$849, respectively; www.lacie.com)—via FireWire and merged them into a RAID using Disk Utility, their RAID 0 performance was 17 percent slower than the stock drive's in large-file transfers, but 30 percent faster in small-file transfers. RAID 1 performance over FireWire was even more extreme: large files, 120 percent slower; small files, 35 percent faster. DiskPerformance gave more-rational results, with 12 percent faster reads and 7 percent faster writes on RAID 0, and 5 percent slower reads and 7 percent slower writes on RAID 1.

When we installed an UltraSCSI RAID 0 setup using a pair of 147GB 10,000-rpm Seagate Cheetah drives (\$895, www.seagate.com) and an Adaptec PowerDomain 29160 UltraSCSI host adapter (\$349, www.adaptec.com), the results were even more dramatic: copying large files, 16 percent slower; copying small files, 21 percent faster; DiskPerformance reads, 153 percent faster; DiskPerformance writes, 170 percent faster.

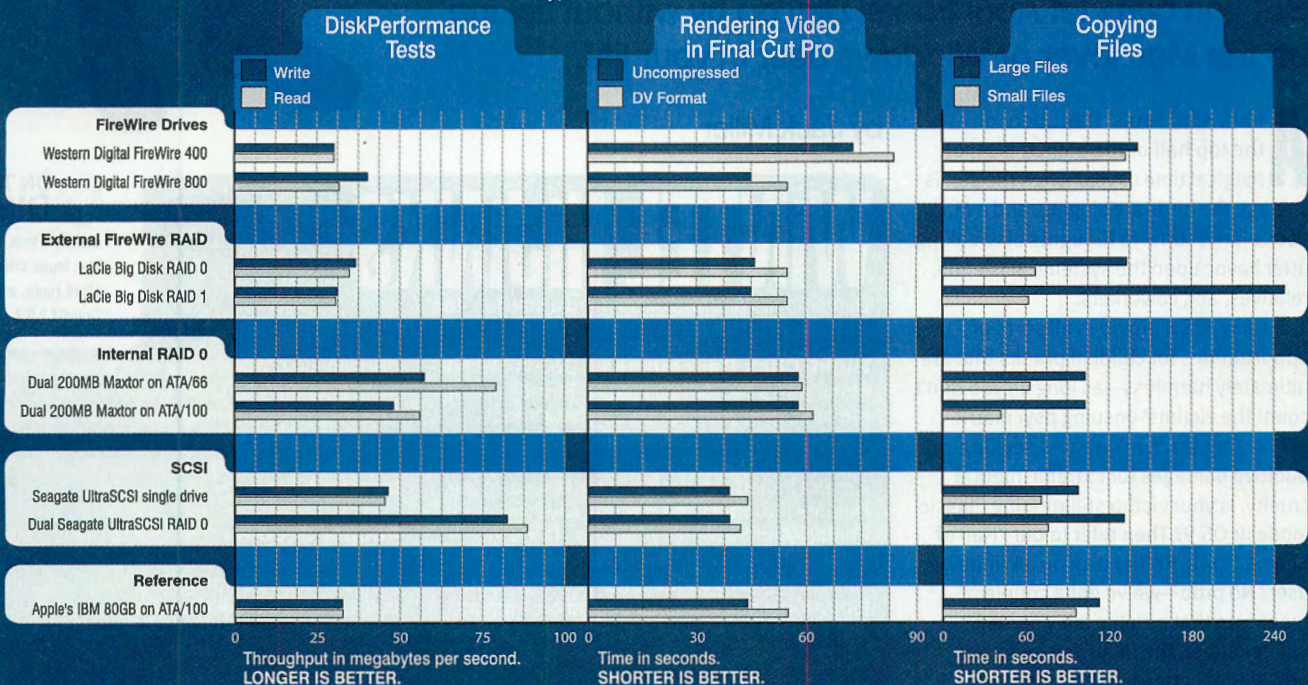
The moral? RAID's are moody lil' things. Your mileage can—and will—vary. 

THE GOOD, THE BAD, AND THE SCSI

To determine the relative performance of a wide variety of storage systems, we A) performed 275 individual tests on 26 different storage devices and configurations, 2) created a plethora of Excel spreadsheets and charts using the data we obtained from our testing, and iii) beat our collective heads against the wall trying to make sense of all the numbers.

Below are the results of 54 of the tests we believe matter most. In the file-copying tests, don't try to compare apples (large files) and oranges (small files), as the tests were of very different sizes: a 4.2GB folder for the former and a mere 228MB for the latter. Instead, compare how well one storage configuration did against another in the same type of test.

Overall, RAID arrays outperformed single drives, internal configurations outperformed external FireWire configurations, FireWire 800 bested FireWire 400, and UltraSCSI beat the pants off everything else. The key word here is *overall*—subtle variations will always occur when you put any hardware through real-world tests.



HOW WE TESTED: We performed all tests on a dual 1GHz Mirrored Drive Door Power Mac G4 with 256MB RAM and running Mac OS 10.2.3. DiskPerformance include the Combined Write and Combined Read tests in Pinnacle Systems' DiskPerformance utility, part of the company's CinéWave RT 3.0 for OS X Jaguar driver package. Final Cut Pro tests rendered three 10-second uncompressed movie clips (two as picture-in-picture elements over the third), once as a 35MB DV-format movie, and once as a 300MB uncompressed file. The file-copying tests copied files using the Finder—the large-file test used a 4.2GB DVD disk image; the small-file tests used a 228MB folder containing 26,643 files.



Formerly the senior technical analyst at *Macworld*, Jeffery Milstead is still waiting for areal density to approach his own cognitive density. He is known to have asked Apple so many times why he couldn't perform other tasks while formatting a floppy disk that the company finally just removed the floppy drive.

APRIL FOOLS'



Sure, you *shouldn't* let Valentine's Day pass you by without telling your loved ones that you, well, love them. But you *can't* let April Fools' Day go by without ticking off the Mac lover or Windows user in your life.

Ahhh, April Fools' Day...here on the top half of the planet, it's that magical time of year when the sun is shining, the birds are singing, and a Mac user's fancy turns to thoughts of wreaking utter havoc upon the systems of friends, relatives, and coworkers.

Luckily, OS X provides all sorts of opportunities for childish pranks that are ultimately harmless—as long as you don't count the victims' ensuing psychiatric bills or that stack of lawsuits seeking punitive damages for extreme mental cruelty. Is your victim still running Classic mode or OS 9? Then refer to our "Hall of Shame," p42. Rather pick on a Windows user? No prob—we've got a couple of pranks up that pitiable alley as well.

Remember, the following items are provided strictly for educational and entertainment purposes; *MacAddict* can't be held responsible for any damage, embarrassment, or loss of life, limb, or soul that misuse of this information may incur. Got it? Now let's get prankin'!

by Jack Miller

WiNTEL HiJiNKS

Remember, Windows users need a little fun, too. So fun 'em up hard.

Right-Click Raucousness Ooooh, Wintels come with a *two-button mouse*. Sheesh, if *that's* the best thing your friends can brag about, then they *deserve* a little motor-skill confusion. Pull up the Control Panel (Start > Settings > Control Panel) and double-click Mouse. In the Buttons tab, check the box that says Switch Primary And Secondary Buttons. Ta-daaa! Left-click is now right-click, right-click is left-click, and you've condemned your friends to a topsy-turvy hell of baffled frustration, tripping fingers, and about a zillion unintentional contextual menus. If they sprain a finger, run.

Blue-Screen Blues If the targeted PC is still running Windows ME, 98, 95, or (saints preserve us!) 3.1, download BSOD Properties (<http://toastytech.com/files/bsod.html>) and change the ever-lurking Blue Screen of Death to, say, a Magenta Screen of Death. It's a most

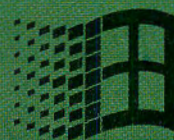
disorienting change to the one screen viewed most frequently by users of those OSs of yore. There's a risk you'll miss your April Fools' Day target altogether if that Wintel goes a whole day without crashing—but seriously, what are the odds?

Pooper Scooper This one requires a sizable chunk of uninterrupted covert access to your Windoid buddy's workspace, but if you can pull it off, it's a royal hoot: Simply replace an entire Wintel system with a big, steaming pile of dog crap. Find a hiding spot with a good view, and wait for the sparks to fly. (This is an extremely subtle gag, so don't be surprised if it takes your victim two or three days to notice anything's changed.)

Don't be too cruel, though; fate has already played the biggest joke of all. After all, your buddy uses Windows, right?



U.S. April Fool.rsrc,
Mac Music Critic
(April Fool!), and
CronniX 2.0.2



Easy & Obvious

Quick-and-dirty pranks that hit your victim like a semi doing 90. Well, maybe 30.

COMMAND-LINE CRACKUP

We're sure you know some Mac users who avoid launching the Terminal out of general principle. They're so gooiily GUI that the mere mention of OS X's hidden command-line interface makes them clap their hands over their ears and yell "La la la, I can't HEEEEAAAR YOOOUUUUU!" Want to send them running from the room, clawing at their eyes and speaking in tongues? (Hey, it's all in good fun.)

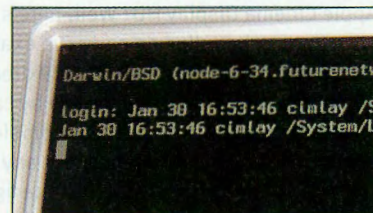
1 The next time your victim hits the water cooler, pop open System Preferences, hit the Accounts pane, click the Login Options tab, and set the target Mac to display the Name And Password log-in window (instead of List Of Users).



The Accounts pane helps you prepare for Command-Line Terror.

2 Next, log out (Log Out from the Apple menu) and save all open documents when prompted (unless you want a price on your head).

3 When the Login window appears, enter **>console** as the name (no password) and press Return.



This is your Mac on Unix. Any questions?

Voilà—every DOS-phobe's nightmare: a Mac with a white-text-on-black-background command-line interface and nary a GUI in sight.

Once you've talked your victims back down from the ledge, help restore GUI goodness by logging into that bone-chilling command-line interface, then typing **logout** and pressing Return. No harm, no foul.

NEGATIVE ViBES

You just know Apple's designers spent hours picking out every little shade of color they used in the Aqua user interface. So what better way to mess with your victims than by turning all those colors on their heads? Trust us—the results aren't pretty.

1 Take another trip to System Preferences and bring up the Universal Access panel. Click the Seeing tab.

2 See that giant button that says Switch To White On Black? Go ahead and click it. Now you should be looking at a nicely inverted grayscale display.

3 Next, open the Displays pane and set the color back to Millions. Ta-daaa! The display is once again full color, but man, those colors are scary.

Your victims may well try switching resolutions and color depths a gazillion times in the vain hope of restoring the screen's color scheme to something less barfworthy; when they've had enough, let them know that Universal Access is the key to restoring beauty to Macland.



One word: Yeeuuuccchhh.

EXTREME CLOSE-UP

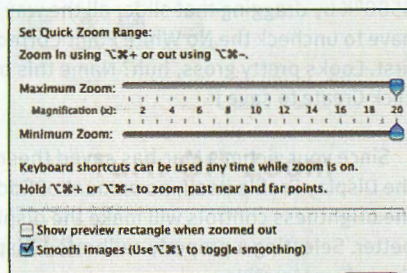
This one's particularly effective when used on claustrophobic people and people obsessed with maximizing their screen real estate. They return from a bathroom break to find their displays zoomed in so much that only six words fit on the screen at a time and the Apple menu icon is the size of a CD-ROM. Laughs aplenty.

1 Once again, call forth the Universal Access pane (and you thought you'd *never* use Universal Access) and click the Seeing tab.

2 This time, click Turn On Zoom and then use the Zoom Options button to set both Minimum and Maximum Zoom to 20x.

3 Quit System Preferences and zoom in by pressing Command-Option-plus sign (+). Oooh, trippy.

While it's certainly possible for your victims to reverse the effects of this little stunt by laboriously navigating through the OS X interface and revisiting Universal Access while looking at a postage-stamp-size chunk of the screen at a time, if you are feeling generous (or fear bodily harm), feel free to pass on the magic Command-Option-minus sign (-) key combo as an easy way to zoom back out.



Set the minimum and maximum zoom to prepare for a zoomed-in nightmare.



Yes, that's a photo of a Cinema Display—1,600 by 1,024, my fanny.

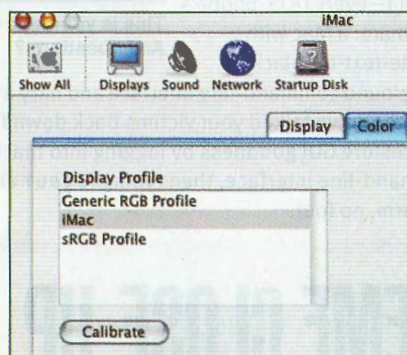
Slow & Subtle

With these elegant pranks, it may take a bit longer for your victim to figure out what's up.

MUDDY WATERS

Know a few aesthetic perfectionists who are fond of bragging about the picture-perfect brightness and clarity of their new Apple Cinema Display HD? Well, here's an easy gag that'll have them scheduling an early eye exam, or at least using a lot more Visine: Turn that \$1,999 dream display (or any monitor, really) brown and muddy by calibrating it like a color-blind psychotic with a darkness complex. Windows users may not even notice the difference, but any Mac users worth their salt will wonder what's up. ("Is it the light in here or what?")

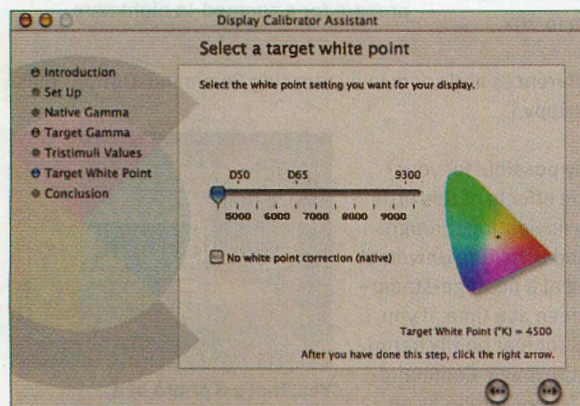
1 Open the Displays system preference pane and click the Color tab. Click Calibrate to launch the Display Calibrator Assistant.



Open the Displays pane to start a-calibratin'.

2 Check the Expert Mode box to turn on extra options and then click the right arrow to begin. Set the target gamma to 2.60 by dragging the slider all the way to the right. Set the target white point to 4500°K by dragging that slider all the way to the left—you may have to uncheck the No White Point Correction (Native) box first. Looks pretty gross, huh? Name this profile *April Fool* and click Create to save it.

Since your victim's Mac has saved these changes in the Display Profile itself, no amount of fiddling with, say, the brightness controls will make the display look any better. Selecting a properly calibrated Display Profile is the only restorative.

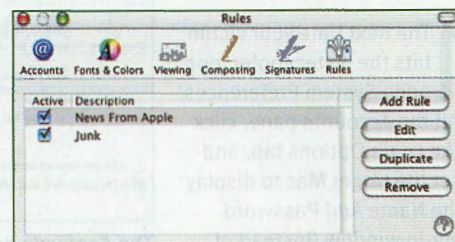


Yeeuuuccchhh Part 2: Son of Yeeuuuccchhh.

"YOU'VE GOT EMBARRASSMENT!"

OS X's Mail application sure is nifty, isn't it? Especially since, with just a few minutes' access to the target Macs, you can configure it to embarrass the living bejeezus out of your victims—and it may take some time before they even realize what's going on.

1 Open Mail's Preferences window and bring up the Rules panel. Click Add Rule and enter *April Fool* in the Description field. When setting conditions via the pull-down menu, choose to perform this rule with Every Message.

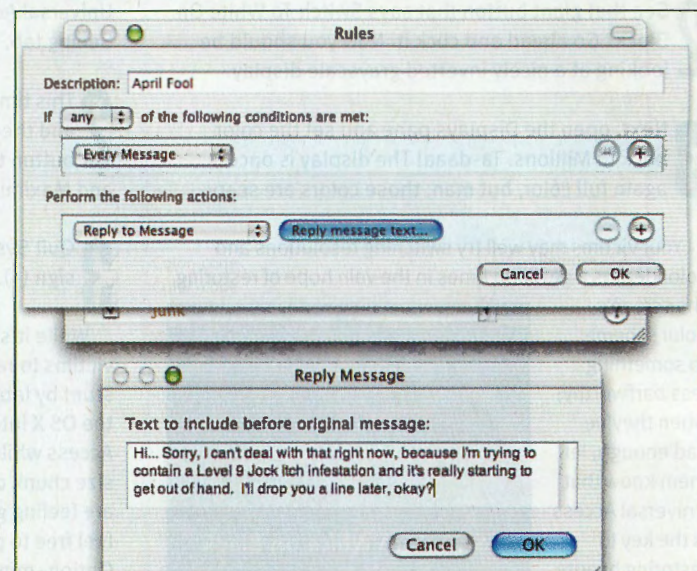


To add a rule, you click Add Rule. Makes sense.

2 For the action, choose Reply To Message. Click the Reply Message Text button and enter an embarrassing message—stuff about uncontrollable bodily functions is always good for a larf or two.

That's all there is to it. Now every time your saps get new mail, Mail will automatically dispatch a reply consisting of your Message of Evil™.

Since autoreplies don't appear in the Activity Viewer while they're being sent or in the Sent mailbox after they go out, your victims probably won't even realize what's happening...until they start getting all those replies from friends, family, and colleagues wishing a speedy recovery from that bout with Explosive Tropical Hyperflatulence.



Sigh...this is how rumors get started.

Elaborate & Elusive



These take a bit more elbow grease to set up...and they just might earn you a savage beating.

ALL THUMBS

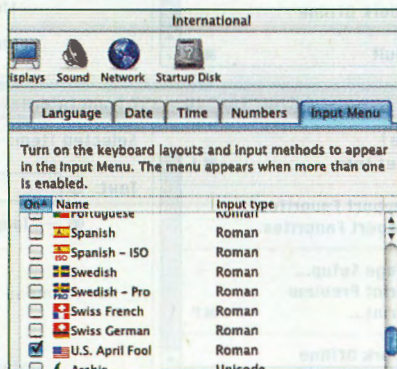
Everyone already knows the old classic: Set your victims' Mac to use the Dvorak keyboard layout so typing anything produces gibberish. Yawn. What we've done here is make things a little more subtle—and a lot more evil.

We created our own custom keyboard layout just for April Fools' Day, so it's rather more insidious. For example, we switched the 2 and 3 keys so incorrect numbers look like clumsy typos. Meanwhile, the Q key doesn't work at all (so Command-Q won't perform a quit), and it looks like a *dead key* hardware problem. And we replaced the lowercase *l* (*ell*) with an uppercase *I* (*eye*), which looks similar enough in default fonts like Helvetica that it might escape detection for a little while.

This keyboard layout is on the Disc. Here's how to activate it in OS 10.2 or later:

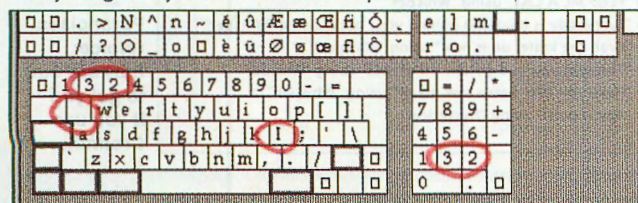
1 Drop the file U.S. April Fool.rsrc into your Library > Keyboard Layouts folder. Log out and back in, or wait for your victim to do so. You can do this way in advance of April 1 without causing any ill effects.

2 When you want to activate the layout, open the International system preference. Click the Input Menu tab, locate U.S. April Fool in the list of layouts, and click its check box to enable it. Uncheck all other layouts. Close the panel.



Select this foolproof keyboard for fooling your favorite fool.

Now just sit back and listen to your pal's Scooby-Doo-like sounds of bafflement and confusion. Incidentally, if you want to make your own keyboard layouts (evil or otherwise), for our money ResEdit's still the easiest—and cheapest—tool around (download it from www.resexcellence.com; you have to run it in Classic or in OS 9 proper). Use a copy of the April Fool layout as a template, along with MacAddict's tutorial on disabling the Help key (from "Hack Your Mac 2000," Apr/00, p27, or www.macaddict.com/magazine/2000_04/hack/hack_help.html). This tutorial pretty much tells you everything else you need to know to pull off this trick.



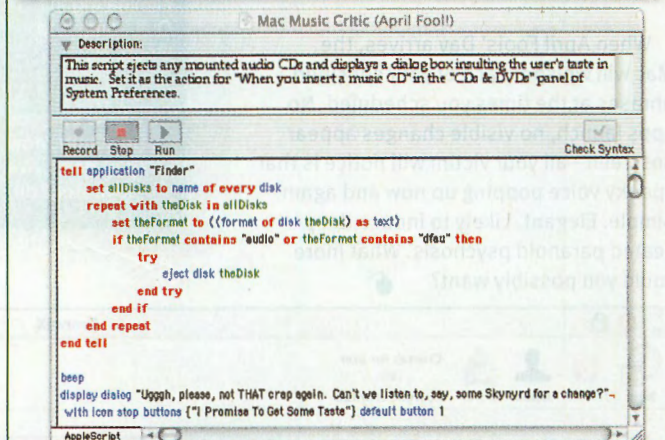
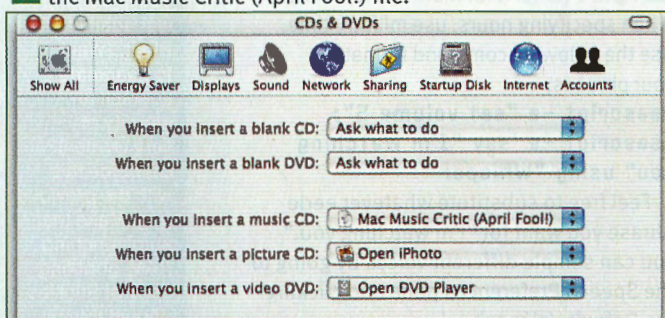
ResEdit reveals the sneaky bits of our new keyboard.

EVERY MAC'S A CRITIC

Know somebody at work who's always bringing in Michael Bolton CDs to play and/or rip in iTunes? Well, this may not be the world's most elegant hack, but thanks to the forgiving nature of AppleScript, we concocted a way to make that person's Mac give lessons in taste.

1 Grab the AppleScript file named Mac Music Critic (April Fool!) from the Disc and put it somewhere inconspicuous on your victim's Mac. If you like, open it in Script Editor and customize the alert message and button.

2 Open the CDs & DVDs system preference. For the option When You Insert A Music CD, select Run Script, and then navigate to the Mac Music Critic (April Fool!) file.



Down with Celine Dion!

That's all there is to it. From now on, whenever your victim inserts a music CD, including that Michael Bolton disc, the Mac should chew on the disc for a few seconds, spit it back out, and instruct the perpetrator to acquire some actual musical taste. Here's hoping it makes a difference.

Hopefully your victim will take this button-click to heart.



Ugggh, please, not THAT crap again. Can't we listen to, say, some Skynyrd for a change?

I Promise To Get Some Taste

HEARING VOICES

This one's a gem. What could be more fun than a Mac that whispers eerie things at seemingly random intervals? It requires substantial setup, but the good news is you can prime your victim's Mac weeks in advance.

1 Run a copy of the freeware app CronniX (on the Disc; or download from www.koch-schmidt.de/cronniX) on the soon-to-be-possessed Mac. This lil' app provides a GUI for the Unix tool Cron, which allows you to schedule the execution of scripts, programs, and apps.

2 Set a bunch of AppleScript voice commands to run at specific times on April 1 (enter 4 for Month, 1 for Mday). When specifying hours, use military time. Use the following command format for your phrases:

```
osascript -e "set volume 5";
osascript -e 'say "I'm watching you" using "Whisper"'
```

Feel free to substitute whatever eerie phrase you want for "I'm watching you." You can sample different voices by going to the Speech Preferences pane and clicking the Default Voice tab.

When April Fools' Day arrives, the Mac will whisper each of your specified phrases at the times you scheduled. No apps launch, no visible changes appear onscreen—all your victim will notice is that spooky voice popping up now and again. Simple. Elegant. Likely to induce deep-seated paranoid psychosis. What more could you possibly want?

HALL OF SHAME

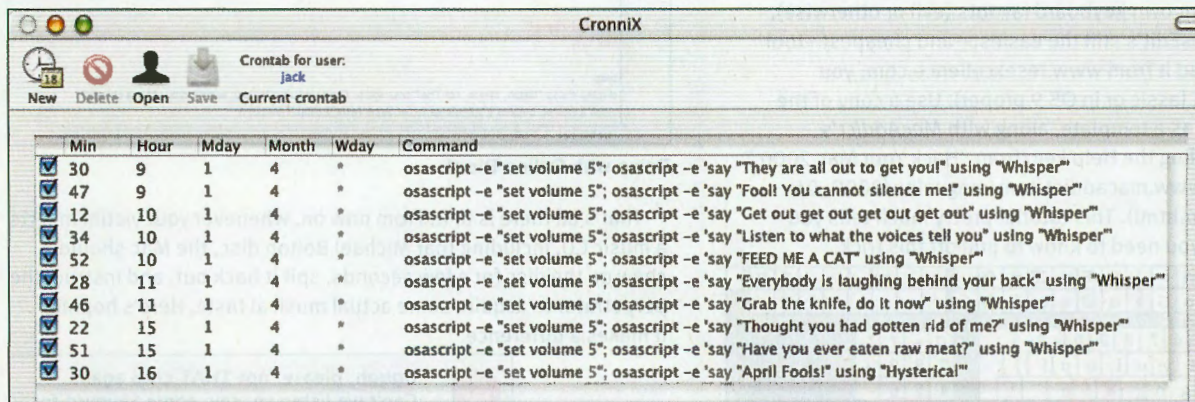
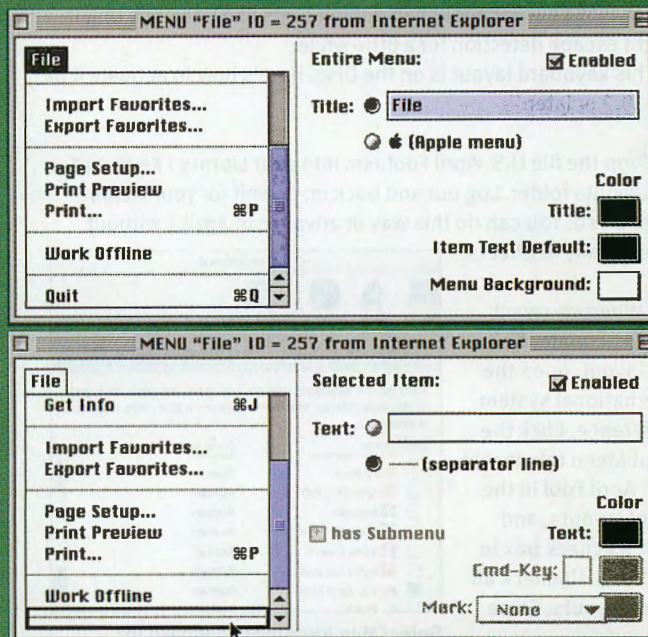
If your victim is still doing the old-school Mac thing, fear not—there are plenty of pranks to go around. Here are three classic gags from the vault to plague those of your pals still riding the 9.

Loud and Proud Perfect for office settings. First pop an embarrassing music CD in your victim's drive. Then open the QuickTime Settings control panel and click Enable Audio CD AutoPlay. Close the panel, crank the Mac's volume to 11, and shut down. The next time the poor sap starts up, the whole office will get a blast of "It's Raining Men."

Launch Break Ahhh, the joys of manual memory management! What's more fun than a Power Mac with a full gigabyte of RAM that still won't launch anything other than Stickies? Do a Get Info on the Stickies application and set its Preferred Size to 950,000KB. For added fun, toss a Stickies alias in the Startup Items folder. Have we mentioned that you're headed straight for the Big Hot Place when you meet your untimely demise?

Menu-Item-ectomy Let's face it, most applications have way too many menu items. Duplicate one of your victim's apps, stash the copy as a backup, and open the original in ResEdit. Open the MENU resources and double-click the menu you want to, er, trim. Toss a few menu items by clicking them and pressing Delete. Close the window, save your changes, and quit ResEdit, secure in the knowledge that you're fighting the war against Menu Bloat. (Want to *guarantee* yourself an eternity of fiery torment? Combine this with the previous gag: Make that autolaunching, RAM-gobbling copy of Stickies unquittable by eliminating the Quit command. Oooh, evil.)

Now you see it (Quit), now you don't. We love ResEdit.

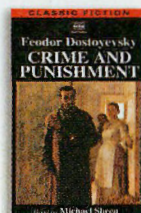
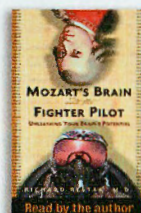
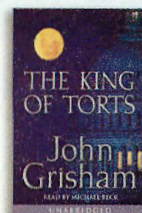


Paranoiacs rejoice; they are out to get you if you use CronniX.

As a stay-at-home dad, Jack Miller divides most of his attention between his baby daughter Anya and his TiVo, but sometimes he still manages to keep As the Apple Turns (www.appleturns.com) somewhat current. He has no discernible sense of humor.



"It's the words that sing to my soul..."



Expand your audio experience. Add the dimension of digital audio spoken word to your Mac iPod and Apple desktop. 30,000+ hours of literate, thought-provoking, side-splitting, "Oh I never knew that," gut-wrenching, spine-tingling audio from the greatest storytellers, speakers, actors, comedians and even a few politicians. Audible is there for everything you do on your commute, at the gym, in your brainstorming sessions and beyond. Keep your brain in motion. Find out what you've been missing!

- Over 6000 audiobooks
- 1700 Unabridged (made for iPod's mega-capacity)
- 23 subscriptions (like Scientific American and The New York Times)
- One audiobook and one subscription each month for just \$14.95 a month (a \$70 value!)
- Two audiobooks each month for just \$19.95 a month (a \$100 value)

*Get Alan Deutschman's controversial audiobook **FREE**
The Second Coming of Steve Jobs



Click here

www.audible.com/macaddict

audible.com®

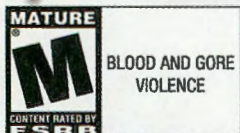
* Available with first months Audible Listener plan. Offer available US & Canada. Not in conjunction with other offers. Audible operates under Mac OS X and above using iTunes 3 and above. Mac OS iPod only.



THE TOURNAMENT RETURNS TO MACINTOSH THIS SPRING



www.macsoftgames.com



Unreal® Tournament 2003 Copyright 2002-2003 Epic Games, Inc., Raleigh, NC USA. Unreal and the Unreal logo are registered trademarks of Epic Games, Inc. ALL RIGHTS RESERVED. MacSoft is a registered trademark and Destineer is a trademark of Destineer, Inc. All other trademarks and trade names are the property of their respective owners. Unreal Tournament 2003 was created by Digital Extremes in collaboration with Epic Games, Inc. The Macintosh version is manufactured and marketed by Destineer, Inc. under license from Epic Games, Inc. The Windows PC version is manufactured and marketed by Infogrames, Inc. under license from Epic Games, Inc. The Atari trademark and logo are the property of Infogrames.

This month we present Episode One in the great "Does size matter?" debate. Exhibit A: the 12-inch PowerBook G4 (pictured here). At this point, we say smaller is better—but once we get some quality time with the big, bad 17-incher, all bets are off. We also got a look at the Devideon DVD-R/CD-RW with its DVD-mastering software (who needs iDVD?). Speaking of software, we made beautiful music with BIAS Peak and took the checkered flag in F1 Championship Season 2000. In the near future, we'll get our mitts on more new Apple gear: AirPort Extreme, Power Macs and iMacs, a 20-inch Cinema Display, and that big ol' PowerBook...if we can fit it all into the lab.

MacAddict RATINGS

MacAddict RATED
●●●●●
AWESOME

You'll be blown away.

MacAddict RATED
●●●●○
GREAT

You'll be impressed.

MacAddict RATED
●●●○○
SOLID

You'll be satisfied.

MacAddict RATED
●●○○○
SO-SO

You'll be disappointed.

MacAddict RATED
●○○○○
LOUSY

You'll be pissed off.

ThisMonth:

- 46 12-Inch PowerBook G4 *notebook*
- 59 Artisan Color Reference System (GDM-C520K) *21-inch CRT display with color calibrator*
- 58 Big Disk 500GB FireWire hard drive
- 52 C-730 Ultra Zoom 3.2-megapixel digital camera
- 61 CopyPaste-X 1.5.1 *Clipboard enhancer*
- 54 deskjet 450cbi *portable inkjet printer*
- 53 Devideon *external DVD-R and CD-RW drive*
- 60 F1 Championship Season 2000 *racing game*
- 60 Freedom Force *role-playing game*
- 61 HomePlug Ethernet Bridge *network bridge*
- 48 Keynote *presentation software*
- 49 Peak 3.2 *audio-editing software*
- 55 StoryBoard Quick 4 *storyboarding software*
- 61 SuperScrubber *disk-sanitizing utility*
- 50 Tom Clancy's Ghost Recon *strategy-based first-person shooter*
- 56 UZR 3D Professional 1.4 *image-based 3D-modeling software*
- 51 Virtual PC 6 with Windows XP Home Edition *PC-emulation software*
- 58 Zip 750MB FireWire External Drive *removable-media drive*

PLUS:

TheHotList

58 The best of the best from recent reviews.



If we were shopping for this type of product, this is the one we'd buy.



Compatible with Mac OS X or later.



Compatible with Mac OS 9 or earlier.

12-Inch PowerBook G4 (867MHz)

NOTEBOOK

All of a sudden, the 12-inch iBook we've used so happily seems almost inelegant. Apple's new 12-inch PowerBook uses the same 12.1-inch TFT XGA display, but packs it into an ever-so-slightly smaller carriage (10.9 by 8.6 by 1.18 inches versus the iBook's 11.2 by 9.06 by 1.35), which, at 4.6 pounds, is also a few grams lighter.

What could make the lovable iBook look ugly? Well, maybe not ugly, but picture a slightly downsized iBook in gorgeous anodized aluminum, which Apple claims is much harder to scratch than the TiBook. Opening the PowerBook's lid reveals this model's best-of-both-worlds case design. The PowerBook's hinge is modeled after the iBook's, but opens a good 15

If your main concerns are small and smaller, this thing is perfect.

percent wider, providing more options for comfortable viewing.

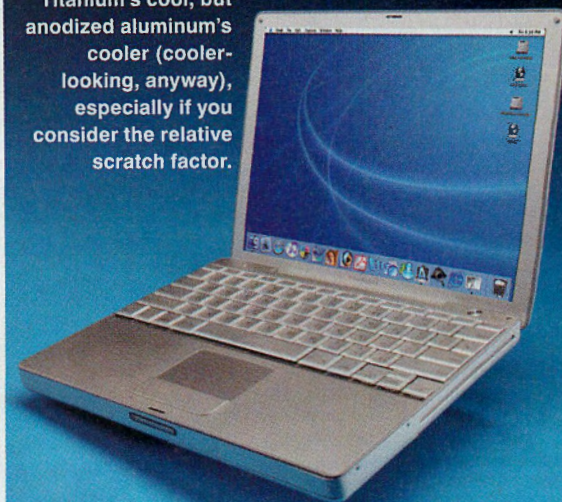
The keyboard is *perfect*. It looks as if it was carved out of a block of solid aluminum, and typing on it is a joy—it feels solid, with snappy, responsive keys. Why is this keyboard so much more fortitudinous than recent Apple laptop keyboards? Simple. This one is built right into the chassis, whereas recent versions used a flexible, user-removable keyboard prone to sagging during use. We only wish this

'Book's keyboard had the fiber-optic running lights that grace the new 17-inch PowerBook.

Portwise, the 12-inch PowerBook matches the current iBook setup: 56-Kbps modem, Ethernet, FireWire 400, two USB 1.1, Apple's combo (S-Video and VGA) video out, and 1/8-inch stereo line out; the PowerBook adds a 1/8-inch stereo line in for good measure (there's also a built-in stereo mic). Under the hood, the PowerBook has onboard Bluetooth for communicating with cell phones and such, and it's ready for Apple's next-generation wireless networking via an easy-access AirPort Extreme slot on its bottom and dual antennae integrated into its lid (AirPort Extreme card sold separately; \$99 at www.apple.com).

Functionally, the wee PowerBook has a few advantages over the iBook—first and foremost, the mighty G4 processor with supercomputing AltiVec technology. Feeding the processor is Apple's next-generation system architecture with DDR SDRAM (that's double data rate—PC2100 at 333MHz). But as in the iBook, you get 128MB built onto the motherboard, and Apple fills the lone memory expansion slot with another

Titanium's cool, but anodized aluminum's cooler (cooler-looking, anyway), especially if you consider the relative scratch factor.



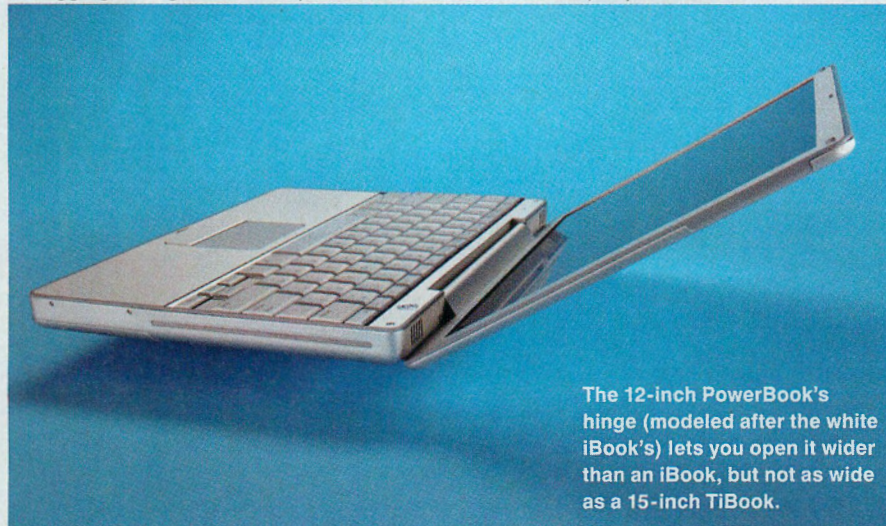
PHOTOGRAPHY BY MARK MADEO

128MB, which you can replace with a 512MB module to hit the PowerBook's 640MB RAM ceiling.

Graphically speaking, the PowerBook's nVidia GeForce4 420 Go chip set provides 32MB of video RAM—enough to drive a 23-inch Apple Cinema Display—and the combo video out supports S-Video, as well as monitor-spanning across an external VGA display (the iBook's VGA out can only mirror the onboard display, not increase its usable size). The PowerBook's 133MHz system bus and Ultra ATA/100 hard drive further sweeten the deal; all that sets this model apart from the 17-inch PowerBook is the absence of FireWire 800, Gigabit Ethernet, and a preinstalled AirPort Extreme card; less video power; lower total RAM capacity—and the 12-incher's Achilles' heel: no level 3 cache.

How important is L3 cache? It's hugely significant in some tasks but inconsequential in others. In our tests, the 867MHz 12-inch PowerBook performed up to 20 percent slower than a stock 800MHz TiBook in some Photoshop actions and up to 20 percent faster in others (with 256MB of RAM in each 'Book). For reference, a 600MHz G3 iBook with 640MB of RAM held its own in most tests (including Gaussian Blur, Rotate Canvas, and Unsharp Mask) but got thoroughly trounced by the G4s' AltiVec Velocity Engine in tests such as RGB-to-CMYK conversion. The moral: Buy more RAM.

The battery survived a 2-hour DVD screening of *Bullitt* with enough juice left over to play the big chase scene again (just to see Steve McQueen make the bad guys' car crash into a gas station sitting on the very lot that now houses our own MacAddict Global Headquarters).



The 12-inch PowerBook's hinge (modeled after the white iBook's) lets you open it wider than an iBook, but not as wide as a 15-inch TiBook.

That car chase sounded great too, thanks to the secret third speaker, which hides behind the keyboard and adds enough midrange to make this the best-sounding portable we've ever heard. (You won't even find this third speaker in the 17-inch PowerBook—it's unique to the little guy.)

Like any laptop, though, the PowerBook got plenty hot while playing that DVD, but we found it bearable on the lap through jeans. Then we plugged in the AC adapter, which changes Energy Saver's Processor Performance settings from Reduced to Highest; after a few minutes at this setting, the 'Book was uncomfortably hot to the touch.

In our don't-try-this-at-home test, an unexpected act of dog sent the PowerBook on a quick, 2.5-foot trip to the thinly carpeted wood floor; the movie played on, and the 'Book suffered no noticeable cosmetic or structural effects (pit bull Peewee's OK too).

To nitpick, the lid-release latch button is recessed in such a way that it requires a fairly surgical strike with the fingernail—this is one place where bigger would be better so we wouldn't have to angle our finger *just right* to release the latch. And an FYI on the

trackpad: Ours arrived with its click button, for lack of a better term, jacked up—raised a millimeter or two higher than it should be. Clicking the button worked fine but didn't feel right, and we couldn't always tell if the clicks had registered. A quick trip to our local Apple Store confirmed that our jacked-up trackpad button is an abnormality, and Apple assured us that its standard warranty covers such defects.

One thing we really dig about this 'Book won't appeal to everyone: This machine will not boot in OS 9. But don't worry, Quarksters—the Classic environment still works. Coincidentally, our external FireWire drive, which happily boots OS 10.2.3 on other Macs, wouldn't boot this PowerBook until we upgraded the FireWire drive to the version of 10.2.3 that came with the 'Book.

So is the 12-inch PowerBook G4 the best of both worlds? If your main concerns are small and smaller (and impeccable style, natch), this thing is perfect. If you need more performance on the road, hold out for a machine with a level 3 cache, a higher RAM ceiling, and other trimmings of the bigger 'Books.—*Niko Coucouvanis*



It doesn't light up like the 17-incher's, but the new PowerBook keyboard is otherwise perfect.

COMPANY: Apple

CONTACT: 800-795-1000 or 408-996-1010, www.apple.com

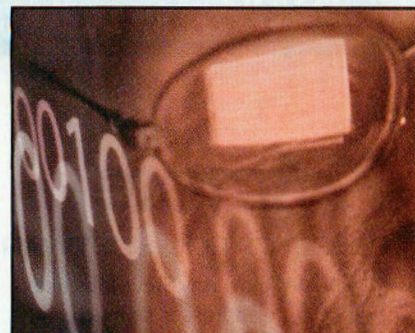
PRICE: \$1,999 (\$1,799 with Combo drive)

SPECIFICATIONS: 867MHz G4 with 256K L2 cache, 256MB PC2100 DDR SDRAM (640MB max), 40GB Ultra ATA/100 hard disk, nVidia GeForce4 420 Go 4X AGP graphics with 32MB DDR SDRAM, S-Video and VGA out, 10/100Base-T Ethernet, 56-Kbps modem, Bluetooth, 1X8X DVD-R/8X4X24X CD-RW SuperDrive

GOOD NEWS: Stunning beauty. Great sound. Scratch resistant. Smallest PowerBook ever.

BAD NEWS: Only 256MB of RAM. No level 3 cache. Tricky latch-release button.

MacAddict RATED
GREAT



Who's looking at the files on your old computer?

- NEWS FLASH -

Associated Press
January 2003

"... simply deleting a file, or even following that up by emptying the 'trash' folder, does not necessarily make the information irretrievable."

Don't risk putting your computer files into the wrong hands.

Protect your email, financial figures, client correspondence, address book, student records, business plans, medical records, graphics, HR files, and more.

SuperScrubber permanently erases all the files and data from your hard drive or partition.

Make SuperScrubber a part of your personal and business security plans.

It's easy to use.
It's bargain priced.
It's the smart thing to do.

\$29.99

SuperScrubber
Erasing the Risk of Data Theft



Jiiva

www.SuperScrubber.com

Keynote

PRESENTATION SOFTWARE

Now we know why Steve Jobs likes keynote addresses so much.

Keynote, originally designed for Jobs's own presentations, cured our aversion to PowerPoint-style presentations with its ease of use, high-quality backgrounds, graphics, transitions, and charting capabilities. Although it has some interface quirks and speed issues, Keynote offers a breadth of formatting and customizing tools that helped us point and click our way to presentations that didn't look canned.

Keynote's superpower is its Inspector—the main formatting palette—where you

Keynote cured our aversion to PowerPoint-style presentations.

can do amazing things to graphics and objects. With alpha-channel support (for background transparency), opacity, and even rotating drop shadows, we gave our dingbats some whiz-bang. Then we got jiggy with Keynote's generous supply of 2D and OpenGL-rendered 3D slide transitions.

Charts and tables no longer have to be boring. We added custom colors and

Customizing Keynote

The best part of Keynote is that you can make your own Master Slides, background Themes, and even chart and table formats. Here's how:

1 Make your own Master Slide by choosing New Master Slide from the Slide menu; Keynote will add your new design to the Master Slide Organizer.

2 Make your own Theme by tweaking a slide to your liking and then selecting Save Theme from the File menu. Your new theme will appear in the Theme gallery the next time you create a new presentation.

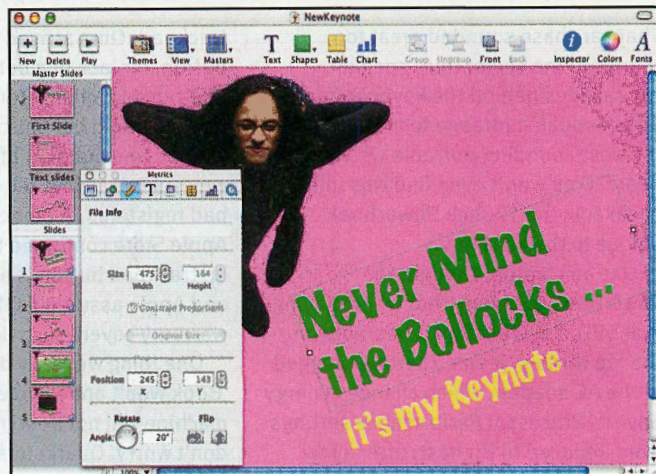
For consistent table or chart formatting, design a table or chart, then choose Define Defaults For Master Slides from the Format menu. The next time you create a table or chart, you'll get that formatting.



We liked our title page so much that we made a Theme out of it.

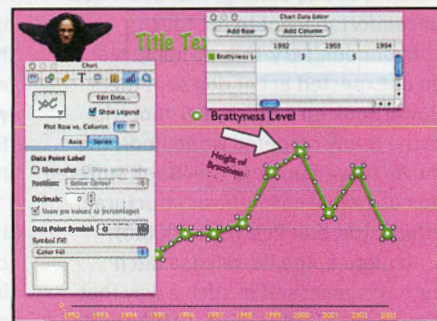


Never mind PowerPoint—Keynote makes a stylish slide-show presentation.



graphics (Keynote comes with a small but good-quality set of sample photographs and clip art). We even added a nice gradient to the back of our chart. While you do get a wide array of chart types (Column, Bar, Line, Area, and Pie, among others), Keynote's charting is not equipped to handle large amounts of data, and you can't import spreadsheet information. One complaint we have is that clicking table cells and text boxes to select them versus clicking inside them to add text is a pain in the butt and often took multiple tries. Our favorite feature of Keynote was its ability to customize Master Slides and Themes (see "Customizing Keynote," below).

We imported QuickTime movies and music (MP3 and AIFF files) to spice up



Keynote charts are pretty, but they're unwieldy if you're handling too much data.

our slides. The QuickTime movie controller in the Inspector is handy, but we wish we could add background music to the entire presentation.

When it comes to showing off your presentation, you've got a few choices. You can view it on your Mac in full-screen mode with options for projector and second-monitor viewing. This worked fine for us, but some reports on Apple's support page indicate that chart-heavy slides are slow when you use the Scale Slides Up To Fit Monitor setting (in Preferences). Similarly, as of press time, we saw reports of ATI driver conflicts on iBooks. You can also export your slide show to a QuickTime movie or a PowerPoint presentation, although in PowerPoint we had to reattach our music files to the slides.

We never had so much fun making a presentation. Yes, Keynote can run slow, it's hard to distinguish click-selecting from clicking inside text boxes and table cells, and Apple needs to work out some bugs. But after living with PowerPoint's myriad crashes and idiosyncrasies, we love Keynote. —Narasu Rebbapragada



COMPANY: Apple
CONTACT: 800-795-1000 or 408-996-1010, www.apple.com
PRICE: \$99

REQUIREMENTS: G3, Mac OS 10.2 or later, 128MB RAM (512MB recommended), 8MB VRAM (32MB recommended), 1GB disk space

GOOD NEWS: Alternative to PowerPoint. Sweet graphics.
BAD NEWS: Disk-space hog. Runs slow. Click versus click-in difficulties.

MacAddict RATED



GREAT

Peak 3.2

AUDIO-EDITING SOFTWARE

Musicians have been jonesing for a dedicated, OS X-friendly audio-editing application—a versatile one that can create audio for Internet streaming and multimedia, master and burn audio CDs, and sync to picture for video and film sound design. Luckily for us, BIAS Peak 3.2 is here.

Besides moving to OS X, Peak 3.2 improves some basic features, such as sample-rate conversion and dithering algorithms for when you need to take your mix from 24 to 16 bits, and adds some new tools like a magnifying glass, a hand tool for moving things around, and a better pencil tool for drawing in your own waveform corrections. Version 3.2 also brings better MP3 encoding, and supports QuickTime 6 and Dolby's AAC encoding format. AAC is the new high-zoot standard for high-quality audio delivery; it provides more efficient compression than crusty

Peak is the audio-production jack of all trades.

20th-century formats such as MP3, but it can deliver audio quality rivaling that of uncompressed CD audio.

One of our favorite parts of Peak is the integrated Vbox SE, a VST plug-in matrix that allows you to combine VST plug-ins in a theoretical 99 by 99 (that's 99 plug-ins that you can use on 99 channels) matrix. You can hook up effects in series, parallel, or mixed configurations for all sorts of audio processes. With proper understanding of EQ and compression, you can set up multiband mastering chains and some pretty sophisticated noise-reduction processes. The I/O meter and the level controls keep audio levels out of the red, so your only real limits are taste and CPU power.



Trials of Peak (OS 9)
3.2, Peak (OS X) 3.2,
and Peak G4 (OS X)

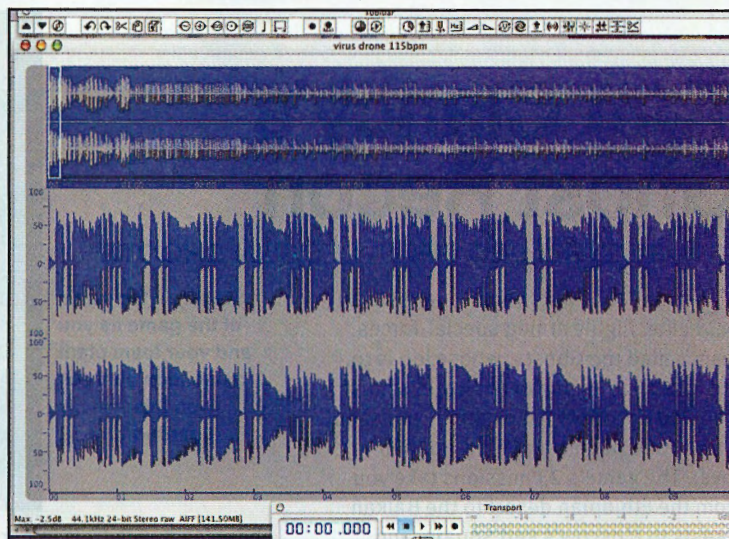
Since Carbonized commercial VST plug-ins are kind of thin on the ground (although Wave Arts' entire line is here),

BIAS can't offer the usual generous amounts of plug-ins it has kicked down with Peak in the past. As a matter of fact, you only get BIAS Freq and Freeverb-c in addition to the MDA set of OS

X VST plug-ins, which you can find free on the Web anyway. Usually free EQ plug-ins don't get much mention unless they have Focusrite or some other high-end surname, but the BIAS Freq plug-in is a great little EQ plug—very musical and easy to understand.

Operating in OS X, Peak 3.2 worked flawlessly on our 450MHz and 733MHz G4s, but had trouble keeping things together on a 600MHz iBook. We got so many "Peak has unexpectedly quit" messages that they became quite expected. BIAS's tech support couldn't find a rational reason for the glitches and blamed the Roland UA-30 USB interface we used, but we experienced the same difficulty when using the built-in Core Audio sound driver. We didn't have the same problem in OS 9, but who wants to use OS 9 anymore?

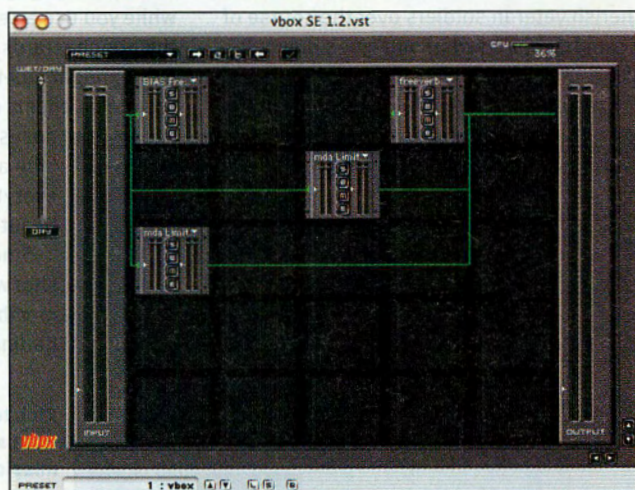
Peak's DSP (digital signal processing) menu is a treasure chest of 28 incredibly useful, practical, and downright freaky DSP algorithms. Boilerplate functions like Change Gain, DC Offset Correction, Click Removal, Fade, Crossfade Normalize, and Sample Rate Conversion will get you out of more production jams than a sleazy Hollywood



Finally, big-time waveform editing comes to OS X—ain't it beautiful?

attorney. Pitch Shift, Time Stretch, Rappify, Phase Vocoder, and Reverse Boomerang will almost always turn out interesting freakiness when it's 3 a.m., you're past deadline, and all other options have failed you.

Peak is the audio-production jack of all trades. It includes virtually every audio tool and function you might need. Editing, looping, streaming-media creation, QuickTime video support, and CD burning are but a few of its many offerings. Given the dearth of Mac (let alone OS X) apps for editing stereo audio, BIAS could have delivered a real turd and people still would have bought it. Lucky for us, the company tossed us a gem.—Kent Carmical



This little widget, Vbox, lets you add countless effects to the mix—please use it responsibly.

COMPANY: BIAS

CONTACT: 800-775-2427 or
707-782-1866, www.bias-inc.com
PRICE: \$499, upgrades from \$99

REQUIREMENTS: PowerPC, Mac OS 8.6 to
9.x or 10.1 (10.2.3 recommended), 64MB RAM

GOOD NEWS: OS X support. Vbox rocks.
More features than we probably deserve.
BAD NEWS: A bit twitchy on slower G3s.
Carbonized plug-ins are still scarce.

MacAddict RATED
GREAT



Tom Clancy's Ghost Recon

STRATEGY-BASED FIRST-PERSON SHOOTER

Ghost Recon puts you in charge of an elite, highly armed special-forces team called the Ghosts, whose job is to, er...“stabilize” some of the world’s most troubled hot spots (translation: you shoot a lot of bad people and blow up their toys). The game’s 23 missions take you from the Ethiopian desert to the Balkan forests to Moscow’s Red Square, and they’ll keep you busy for days straight; it all plays out in a snazzy 3D world via a first-person perspective.

Before each mission, you’ll handpick your Ghost team from a pool of soldiers in

Stealth is the name of the game as you and your team plant demolition charges on this heavily guarded bridge.

about teamwork (remember, there’s no letter “i” in the word “team”). A Ghost team typically consists of six soldiers divided into Alpha, Bravo, and Charlie fireteams. You can control any soldier in a first-person view, and the other members of that soldier’s fireteam will follow along and fire at available targets (often ones you’ve overlooked). At the same time, you can order your other fireteams to sit tight or move along paths you quickly set on a map. You also decide how each fireteam responds to enemy contact—that is, let the lead fly, or act stealthy and avoid detection.

This level of control (which usually involves no more than a few mouse or keyboard clicks) lets you use your teams strategically, and that’s the name of the game. For instance, you might order one fireteam to engage an enemy position, while you use a second team to surprise the poor bastards from another direction. Or you might quietly position your fireteams around an enemy camp, right under their

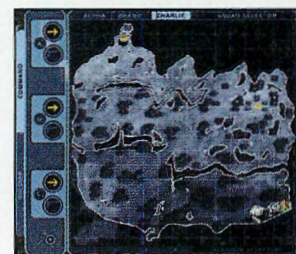
noses, and then give the “fire at will” command when everything’s just right (truly a beautiful site to behold).

Since a single enemy shot will usually kill a team member (and a grenade can flatline a handful), you want

Pick team members with the right skills for each unique mission: With a Stealth rating of only 2, this rifleman wouldn’t be your best bet for a delicate recon job.

to deploy your fireteams carefully, probing unexplored territory and committing to battle only when you’ve got a plan. Of course, this game’s pace is much slower than that of Quake-style shooters, but it creates a dramatic tension that puts traditional shooters to shame.

Ghost’s authentic combat model goes hand in hand with surprisingly good enemy AI (despite occasional hiccups)—when the



You can call up this map at any time to set and tweak movement paths for each of your fireteams.

shooting starts, enemy troops sprint for cover, use the terrain to their advantage, and often have the good sense to lay in wait. Battlefields also come to life, thanks to the many detailed touches (fog and rain effects, flocks of birds in the distance, gently swaying trees, the sound of pebbles kicked up underfoot), and the game’s smooth 3D character animation is first-rate, right down to soldiers shooing flies away and wounded enemies dragging themselves to cover.

All this makes Ghost Recon the closest we’ll ever get to the special forces (probably a good thing as far as national security is concerned). The game doesn’t dish out the manic fragfests of Quake, but sometimes the action is sweeter when you have to strategize and make every bullet count.—*Helmut Kobler*



COMPANY: Aspyr Media
CONTACT: 888-212-7797,
www.aspyr.com
PRICE: \$49.95

REQUIREMENTS: 450MHz G3, Mac OS 9.2 or 10.1 or later, 128MB RAM (256MB in OS X), ATI Rage 128 or nVidia GeForce video card (16MB VRAM), 1GB disk space

GOOD NEWS: Good blend of action and strategy. Realistic combat model. Excellent multiplayer mode.
BAD NEWS: Interface for controlling AI fireteams can get tedious. Online multiplayer mode occasionally crashes.

MacAddict RATED
★★★★★
GREAT

Virtual PC 6 with Windows XP Home Edition

PC-EMULATION SOFTWARE

Finding uses for Virtual PC is getting tougher all the time, what with OS X's bountiful software, ever-growing hardware support, and genius-level networking savvy, but some PC-only software is still out there, and *lots* of in-house proprietary systems (company intranets and such) refuse to acknowledge Macs running any OS—unless it's a Windows OS. And don't forget the so-called standards-based World Wide Web, whose sites often appear radically different on Windows than they do on Macs. Virtual PC comes to the rescue.

OS X users upgrading from Virtual PC 5 will find version 6 faster (Connectix claims up to 25 percent faster), but if you're a switcher or other Virtual PC virgin, don't get your hopes up. Even our mighty

more copacetic: The program installs a Start Menu in OS X's Dock. Blasphemy! It's actually a stand-alone app that can save you at least half a step in accessing your Virtual Machine, especially if you've shut down Virtual PC—the Start Menu app remains docked. Another

Dock invasion comes in the form of app icons—launch a Windows app, and its icon appears in the Dock until you quit the app. If this is too creepy, you can turn off either or both of Virtual PC's Dock integration features via the Settings window.

Virtual PC has other handy forms of integration with OS X. For instance, you can mount Windows disk images on the OS X desktop, with access to the files you've created on the PC—*anywhere* on the PC, not just in the designated Shared folder as in Virtual PC 5 and earlier. And if you can't find the files on the emulated PC disk, you can search the Windows drives with Sherlock, which is pretty cool. Unfortunately, none of these new features works in OS 9, but some of the other improvements do, including increased video support (finally, Virtual PC can emulate up to 16MB of VRAM—enough to drive an Apple Cinema Display), drag-and-drop installation, improved USB printer support, and security features for controlling access to the Virtual Machine settings and the Mac OS Finder from within Virtual PC.

One new feature is counterproductive to those using Virtual PC in both OS 9.x and OS 10.x on a single Mac: the Virtual



Famous switcher Ellen Feiss looks even more herbolically enhanced on Windows. Note the Start menu in the Dock—now *that's* integration.

Machines are now self-contained (in OS X), so you can transplant an entire Virtual Machine to another Mac and retain all of the PC's settings. The downside is that while you can use the same Virtual Machine in OS 9, you have to reapply any changes to settings. We prefer convenience in OS X over OS 9 and OS X interoperability, so we're fine with this arrangement.

Virtual PC is a fantastic application, especially if your other option is getting a Dell (*dude*) or some other Wintel PC. Just remember that it's about compatibility, not speed.—Niko Coucouvanis

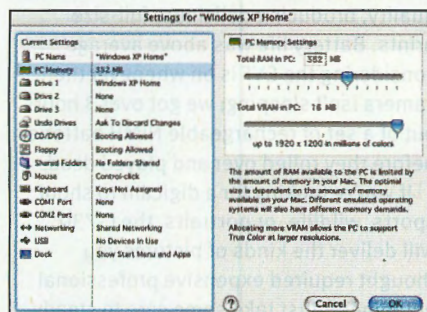
Why's It So Slow?

As fate would have it, emulating a processor is, in Connectix's words, "a very nonparallelizable problem." And dual-processor computing is a parallel solution—that's why our dual-processor Power Mac doesn't look like much to Windows' System Information utility. Take some consolation in the fact that Virtual PC uses that second processor for video and I/O operations (disk access, networking, and so forth), which at least lightens the burden on the processor doing the dirty work.

It's about compatibility, not speed.

dual-processor 1.25GHz G4 Power Mac only translates to an x86 processor running at a whopping 666MHz (see "Why's It So Slow?" right). If you just switched from a modern PC, well, we hope you brought plenty of that patience we hear Windows users need.

Mac purists might want to turn the page now. We feel dirty enough just knowing Windows is installed on the Mac, but Virtual PC 6 introduces a new widget that's supposed to make the cohabitation even



Make sure you visit the Settings window and up the VRAM—it still defaults to 4MB.

COMPANY: Connectix

CONTACT: 800-950-5880 or 650-571-5100,

www.connectix.com

PRICE: \$249, \$99 upgrade from version 5

REQUIREMENTS: G3 or G4 (no upgrades;

500MHz for OS X), Mac OS 9.2.2 or 10.1.5 or 10.2 or later (10.2.3 strongly recommended), 196MB RAM (256MB for OS X), 2GB disk space

GOOD NEWS: Supports 16MB video.

Well integrated with OS X.

BAD NEWS: Hardware emulation is slow. Windows still sucks, even on a Mac.

MacAddict RATED



GREAT

C-730 Ultra Zoom

3.2-MEGAPIXEL DIGITAL CAMERA

You can get really *up close and personal* with the 3.2-megapixel Olympus C-730 Ultra Zoom. This digicam thrives on shooting sports and wildlife, and can also produce portraits with beautifully soft backgrounds. With a fast f-2.8 lens, a 10x 38mm to 380mm (35mm-camera equivalent) zoom, a top shutter speed of 1/1,000th of a second, and a 1.2-inch macro mode, this is one versatile camera.

Beware, though—to get that long reach from the C-730 (or any camera), just raising it to your eye and shooting won't cut it. When photographing at the maximum telephoto setting in anything but the brightest light, you usually need a tripod

zoomed in about halfway to shoot some beautiful portraits with out-of-focus backgrounds.

The C-730 uses an electronic viewfinder (EVF) instead of an optical one; under dim light it has a grainy, low-resolution, camcorder feeling. But we prefer a grainy EVF to the extra price that would accompany a glass optical viewfinder fitted for a 10x zoom. Another

consolation is the camera's traditional 1.5-inch LCD monitor, which gives much better definition than the EVF.

To its credit, the EVF offers a heads-up, jet-fighter-like display of all the camera's functions (it mirrors the LCD monitor), and since it has a good range of diopter adjustment, most four-eyed photographers will love it—you can set menus, see your exposure settings, check a histogram (a graphic display of exposure values), keep track of battery life, and more, all without using eyeglasses.

Like most Olympus cameras, the C-730 has a plethora of bells and whistles, some of which you'll probably never use—like the silly self-portrait mode where you hold the camera at arm's length pointed at yourself and say cheese (or *cheese*).



PHOTOGRAPH BY MARK MADEO

With its 10x optical zoom lens, Olympus's C-730 can get you right into the action.

The C-730 captured images with minimal artifacts and excellent picture quality.

or monopod to steady the camera, because the slightest shakiness will be magnified big time.

Of course, when you pull back to a normal or wide-angle view, you *can* hand-hold the C-730. Setting the camera to Auto or Program will usually yield perfect results. You can also select a scene mode—Portrait, Action, Landscape, or one of three others, depending on your subject matter. For full control there's Aperture and Shutter Priority, Manual Exposure, and Manual Focus. We selected Aperture Priority, set the lens opening to f-2.8, and

Other features, though, are more useful, including an external socket for off-camera flash, (there's a powerful built-in flash too), movies with sound, NTSC and PAL video out, exposure autobracketing, a choice of burst modes, ISO settings up to 400 for low-light situations, and an optional adapter for add-on lenses and filters.

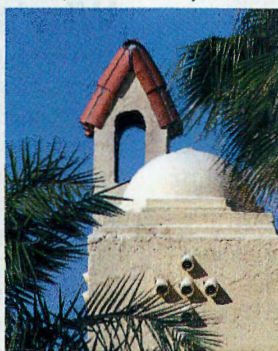
You can even kick in a 3x digital zoom on top of the 10x optical one, which gives you the 35mm equivalent of 1,140mm, powerful enough to shoot big game from afar. Remember, though, that digital zoom just chops a piece of the image from the center and interpolates it to a higher resolution, so be prepared to lose some sharpness. You can do the same thing with more precision in Photoshop and other image-editing software.

The C-730 captured our images with minimal artifacts and excellent picture quality, producing delicious, full-size prints. Battery life was above average considering the EVF is on whenever the camera isn't sleeping; we got over 3 hours out of a set of rechargeable NiMH batteries before they rolled over and played dead.

If you're looking for a digicam to shoot sports, wildlife, or portraits, the C-730 will deliver the kinds of pictures you thought required expensive professional equipment. Just take some care to steady your shots, and this camera will come through with aplomb.—Arthur Bleich



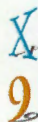
Set to its widest field of view, here's what the C-730 Ultra Zoom saw.



Maximum optical zoom brings objects in 10x closer and sharp as a tack.



Digital zoom extends the range to 30x but will cost you some sharpness.



COMPANY: Olympus
CONTACT: 800-347-4027,
www.olympus.com
PRICE: \$599

REQUIREMENTS:
USB-equipped Mac,
Mac OS 8.6 to 9.x or
10.1, or later

GOOD NEWS: Takes both SmartMedia and the new x-D memory cards. Long, well-balanced telephoto reach. Fine image quality. Takes add-on lenses (with optional adapter).
BAD NEWS: Electronic viewfinder (EVF) lacks high definition. Can't turn off information overlay on EVF and LCD monitor.

MacAddict RATED
★★★★★
GREAT

Devideon

EXTERNAL DVD-R/CD-RW DRIVE

We give Formac a high five for addressing the lack of an inexpensive, stand-alone DVD-authoring application for folks wanting an external DVD burner. Because Apple originally didn't make iDVD a purchasable product, Formac created its own software that works only with the Devideon drive: A noble effort, especially if you read the fine print. Sure, you can now buy iDVD 3 in Apple's iLife bundle, but no, you still can't use it on nonApple-installed drives. At \$400, the whole Devideon package costs the same as what other companies charge for similar drives with no software.

Let's start with the design. Its hull is one you may have seen before—the very

while holding down the drive with the other hand to keep the device from sliding across your desk. Nice color, though.

Inside the case is a Pioneer DVR-A05, Pioneer's third-generation consumer optical burner, which—like Apple's SuperDrive—can write to (and read)

General DVD-R (not the high-end Authoring DVD-R), DVD-RW, CD-R, and CD-RW media. We burned several discs using the included Devideon software as well as Roxio's Toast Titanium. The drive performed as expected and didn't produce any coasters.

One cool fact is that this device is faster and costs less than the first generation of Devideon DVD drives (and we won't mention the embarrassing state of the first-generation Devideon software). The original Devideon housed a Pioneer DVR-A04 that burned DVD-Rs at a maximum speed of 2X; the new drive burns at 4X. Additionally, the new drive can burn CD-Rs twice as fast (16X) as its predecessor.

No, it's not the fastest drive in the world, but that's the drive's fault, not Formac's. The new Devideon also sells for \$150 less than the original—we love that.

The included Devideon authoring software is the biggest deal about this package, simply because Formac filled the void of an affordable alternative to buying either Apple's \$1,000 DVD Studio Pro or a brand-new SuperDrive-equipped Mac with iDVD. While the Devideon software

isn't as mature or polished as iDVD, it's in the box, and for the most part, it works, letting you easily add custom backgrounds, text, picture objects, and of course, video to your project. Our main beef here is with Formac's definition of chapters: Devideon only recognizes them as individual movies which you must import individually, rather than points that we can define within a single movie file, as iDVD 3 does.

We tested the Devideon with processed QuickTime movies and with raw (straight out of the camera) DV footage. When we compressed raw DV into MPEG-2 (the standard DVD video format), the resulting video played slowly, while the audio played at normal speed. Strange, but Devideon had no trouble converting a QuickTime-exported DV file into MPEG-2. The manual recommends starting with DV-PAL or DV-NTSC (MJPEG) footage—not a problem if you have QuickTime Pro and some extra time on your hands. For the record, we also got good results using regular old .mov (QuickTime movie) and Sorenson-compressed files.

The devideon is a solid hardware-software package. The hardware itself rocks (aside from the eject button), but we wish we could use it with iDVD 3, and get that Apple fit-and-finish and iDVD's unique integration with iTunes and iMovie. Choice is good, and Devideon gives us just that—without charging more—which is great.—Andrew Tokuda

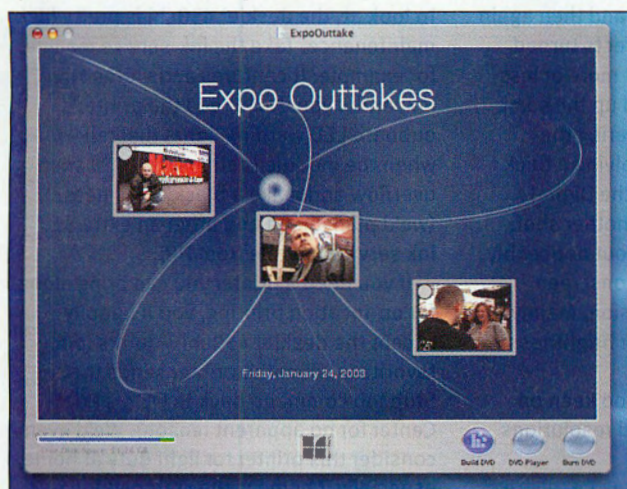


PHOTOGRAPH BY MARK MADEO

Finally, an external DVD burner with authoring software—never mind the well-worn-bar-of-soap look.

It's a solid hardware-software package.

same design as that of the company's CD-RW drive and discontinued DVD-RAM drive. This time, it's iBook white with a chrome logo, instead of the BMW gray of the past. We've criticized the eject button's placement and recessed nature before (it's right under the falling drive door), and we'll do it again. The drive would be much more user-friendly if you didn't have to push the eject button with the fingernail of one hand



Formac's Devideon 2.0 authoring software is worlds better than the company's first Devideon release.

COMPANY: Formac
CONTACT: 510-528-9300,
www.formac.com
PRICE: \$399

REQUIREMENTS: FireWire-equipped
G3, Mac OS 9.2.2 and DiskCopy 6.5, or
OS 10.1.4 or higher

GOOD NEWS: Works as a DVD drive should.
Plug-and-burn device. Affordable.
BAD NEWS: Poorly implemented eject button.
Limited DVD-authoring software.

MacAddict RATED

GREAT

deskjet 450cbi

PORTABLE INKJET PRINTER

Road warriors know you can never count on finding a printer when you really need one—at least not one that's compatible with your Mac. The solution, of course, is to bring your own. In the deskjet 450cbi's case, you're bringing along a 13.3-by-3.2-by-7.3-inch, 4.6-pound (battery included) USB printer that also plays nice with your infrared-equipped PDA, CompactFlash cards from your digital camera, or (with an optional adapter) a Bluetooth-enabled Mac, PDA, or cell phone.

Getting this beast working with a Mac was simple: We followed the quick-start pamphlet (insert ink tanks and install software from included CD), and when we

The large-purse-size deskjet 450cbi packs smart mobile features into its smart-looking (and more important, portable) form.

Printing directly from a CompactFlash card is another feature with a fairly big *but*—the card must contain a DPOF (digital print order format) file, which tells the printer information such as which image(s) to print and how many copies. Most modern digital cameras support DPOF (see your camera's documentation to make sure), but if yours doesn't, forget about printing from CompactFlash.

The real test of a printer is how it prints, and this one performs decently. Its results are not great, not terrible, but pretty good. And HP's driver lets you tweak all manner of settings, including color saturation, brightness, and tone; Ink Density; and the Digital Photo settings, which allegedly retrofit your digicam snaps with Digital Flash, Contrast Enhancement, Sharpness, Smoothing, and SmartFocus.

Since HP sets the Digital Photo effects to Auto by default, we printed an otherwise unmodified photo this way, and then again with all the Digital Photo effects turned off. The two prints came out more or less identically. We then mucked up the same image in Photoshop (by lowering the contrast 20 percent and applying a thick blur) and gave the Digital Photo effects another shot: The print came out noticeably better than the onscreen mucked-up version, mainly in terms of color brightness and contrast.

We're never too keen on digitally inflated resolutions

This rechargeable Lilon battery lasted us a couple of hours, and it's built for traveling.



PHOTOGRAPHY BY MARK MADEO

like the 450cbi's *optimized* 4,800-by-1,200-dpi High Resolution setting; we printed an 8 by 10 photo at this setting and again at 1,200 by 1,200, and the slightly improved shadow detail of High Resolution wasn't worth the time suck (our 8 by 10 took half an hour at High Resolution, compared to 7 minutes at the next-highest setting). Another problem is that such optimization brings out JPEG artifacts in most photos, as it did in our half-hour print.

We were impressed when the 450cbi spit out a dozen 8 by 10 high-quality photos (at about 7 minutes per page, mind you) before the power-button LED turned red, indicating that the battery was 10 percent away from dead. We plugged in the included combo battery charger and AC power supply and pushed out 20 more high-quality 8 by 10 photo prints before the ink ran out.

Like most things rich in features and nice to look at, the deskjet 450cbi is pretty high maintenance. Take the ink-service module, for example: It captures and stores stray ink, and if you don't heed the printer's onboard LED warning lights that tell you when the module is almost full, it'll soon overflow and make a black, inky mess (we'd plan ahead and order an extra \$10 ink service module from HP).

If you need a printer you can bring along for on-location printing, you'll happily accept the deskjet 450cbi's quirks (our favorite is when the printer sends the Stop Job command back to OS X's Print Center for no apparent reason). We'd even consider this printer for light duty at home, especially if home is too cramped for a regular-size desktop printer.

—Niko Coucouvanis

Its results are not great, not terrible, but pretty good.

fired up OS X's Print Center, the 450cbi was already on our list of available printers. Oh, we skipped a step there: buying the damn USB cable. HP not only stiffes you on the USB cable, but adds insult to injury by including a parallel cable instead.

Printing from other supported devices wasn't quite as smooth. Printing Word files from our Visor handheld via infrared and the included 450cbi-specific version of BtPrint didn't work, though we were able to print from built-in Palm OS apps (Memo Pad and so forth) via BtPrint. We turned to DataViz's Documents to Go (\$69.95, www.dataviz.com) for printing Word text documents.



COMPANY: Hewlett-Packard
CONTACT: 800-752-0900,
www.hp.com
PRICE: \$349

REQUIREMENTS: USB-equipped G3, Mac OS
8.6 or later, 64MB RAM (128MB for OS X)

GOOD NEWS: Versatile. Portable. Quiet.
Prints good-quality photos and text.

BAD NEWS: Highest-quality setting is a waste of
time and ink. Occasionally quirky driver.

MacAddict RATED
●●●●●
SOLID

Storyboard Quick 4

STORYBOARDING SOFTWARE

Planning a video or film shoot can be an exercise in controlled chaos. Knowing in advance every shot you have to get, every angle, and every scene can make the difference between meeting your budget and blowing it out of the water. PowerProduction Software's recently released OS X update to StoryBoard Quick takes much of the pain out of planning a shoot.

Storyboard Quick ships with a fairly generic set of people, places, and props you can use to construct scenes. The included libraries provide several characters in a wide variety of poses, such as running, sitting, and jumping. You also get a pretty good variety of locations, including diners, streets, and home interiors. If you aren't happy with the locations, you can take snapshots of real places and import them for use in your projects.

You lay out scenes in a Frame window, one frame per shot. Frames can conform to almost any standard aspect ratio—for example, full frame or HDTV. You have a fair amount of control over your composition, but the tools are basic. All the items in a frame remain resizable, and a freehand drawing tool allows further tweaking. When you select a character or prop from a library, you can use a button to cycle

through the different versions of that item or scale it up or down. If you've imported a file, StoryBoard Quick lets you set a solid color in it as a transparency. You can also flip any item in your frame horizontally or vertically. Any other graphic manipulation is pretty much beyond the scope of this application.

It's a great tool for rapidly creating a basic storyboard.

If you have a group of similar shots, you can duplicate a frame for reuse or modification. StoryBoard Quick also allows you to import text files, such as shooting scripts, for use as a guide for creating your frames. Once you've created them, you can use the Overview window to get a quick glance at your work or reorganize your shots.

Storyboard Quick has a wide array of printing options. You can choose the number of boards per page, set horizontal or vertical order, and even print a shot list. You can also export individual frames or objects as graphic files and output

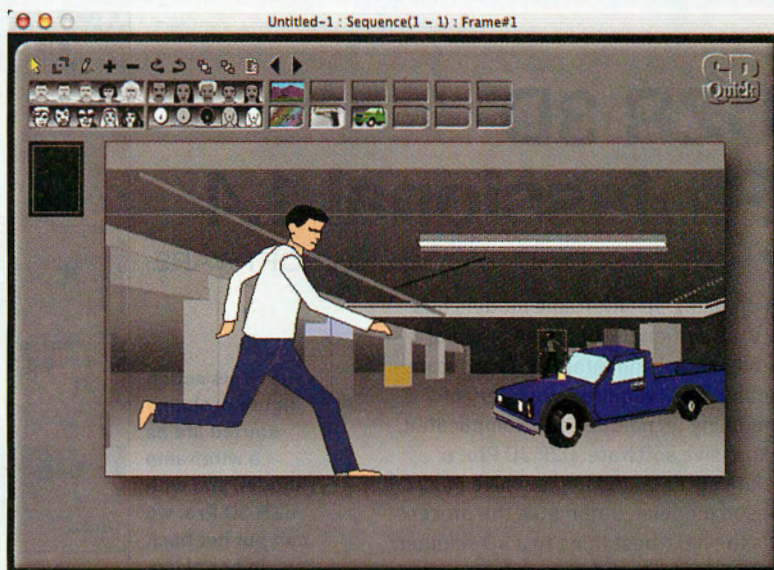
Print out your storyboards your way by setting the number of boards per page or choosing a horizontal or vertical arrangement.

the entire project as an HTML document. The HTML feature is a great idea, but unfortunately, unlike with printing, you don't have any control over the output.

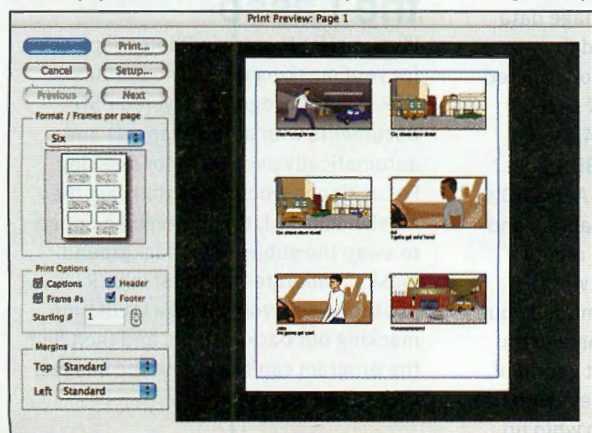
Storyboard Quick's copy-protection scheme will make you wince. You must email PowerProduction Software a key

number generated at launch, which the company uses to create and send back a serial number. The key is different each time you install or upgrade. The software is also missing some obvious features, like the ability to batch-export your frames if you want to put them all into a QuickTime movie (although you could use the images created by HTML export). You also can't add effects to your objects—say, indicating that an object is in motion rather than at rest. Considering its limitations, this product seems a little expensive at \$279.

Complaints aside, StoryBoard Quick is a great tool for rapidly creating a basic storyboard. You can adapt the included characters and locations for almost any use, and if you need specialized items, the add-on libraries are there for you. Even if you are artistically challenged, you can still get up to speed and create compelling storyboards for your project with StoryBoard Quick in less than 30 minutes.—Rick Sanchez



Storyboard Quick makes basic storyboarding a snap, with libraries of characters, objects, and backgrounds that you can drop right into the shot.



COMPANY: PowerProduction Software
CONTACT: www.powerproduction.com
PRICE: \$279.99 (\$49.99 for add-on libraries)

REQUIREMENTS: PowerPC,
 Mac OS 9 or later, 16MB RAM

GOOD NEWS: Libraries have a good selection of characters and props. Great print options.
BAD NEWS: No batch image export. Annoying copy-protection scheme. A little pricey.

MacAddict RATED
 SOLID

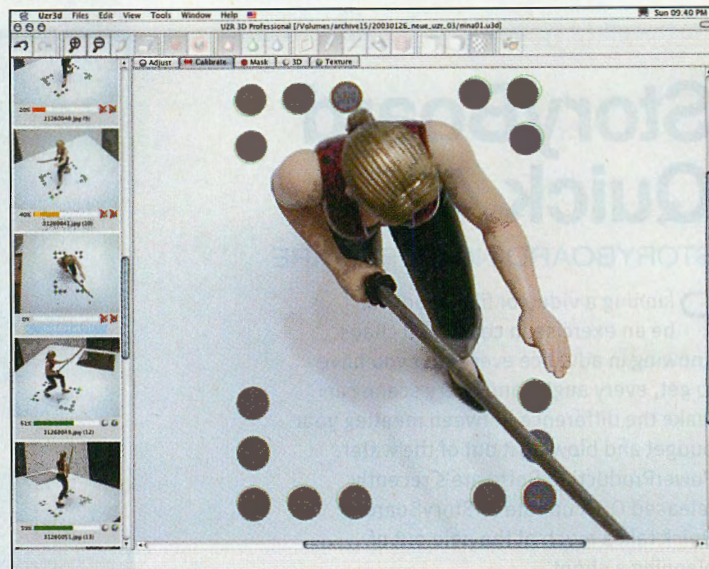
UZR 3D Professional 1.4

IMAGE-BASED 3D-MODELING SOFTWARE

Making 3D wireframe models has traditionally been the realm of professional animators and hard-core hobbyists. It requires a mastery of modeling techniques and complicated, expensive software. UZR 3D Pro, a relatively easy and inexpensive image-based modeler, automates the process—it's the next-best thing to a 3D scanner.

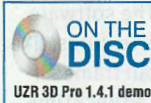
UZR performs admirably (surprisingly so, actually) in extrapolating a batch of digital photos into a 3D wireframe model with minimal fuss and not a huge time investment on your part. The steps are as

This action figure probably started life as a wireframe model, and with UZR 3D Pro, we can put her back in her place.



It's the next-best thing to a 3D scanner.

follows: Print out the photo-stage template (a pattern of circles that UZR 3D uses to calibrate the disparate images of the subject), shoot a bunch of digital photos of your subject on the template, adjust for color and exposure as necessary, calibrate the images (more on that later), mask out the backgrounds, and finally click UZR 3D's



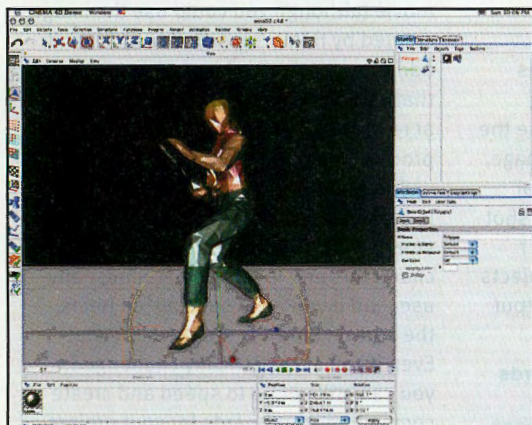
3D button. The trick, of course, is getting your images calibrated right so the

object's dimensions and perspective will match up—it seems a little strange that you can reposition the circles manually within UZR 3D (thus forcing a spatial calibration), but you can't change their shape or angle (for tweaking the perspective) once you've done so. What this means is that at this stage, you're more or less at the mercy of UZR 3D's fickle preferences, and if the program doesn't happen to like one of your views, you'll have to reshoot that view.

You can do the masking in your favorite image editor before importing the pictures into UZR 3D, which might save you the torment of hunting for UZR 3D's brush resize feature (here's a hint—hold down the Command key and drag). UZR 3D's masking tools are easy to learn and simple to use once you get the hang of them, though—and a tablet definitely comes in handy.

some hot 3D action, when something goes wrong, it's tough to figure out exactly what, why, or how to fix it. The software comes with a quick-start manual that's a little too quick for an application of this caliber. We found a PDF manual at UZR's Web site, but we'd prefer a more in-depth printed guide. We do appreciate the plentiful tutorials and examples UZR provides, available on the CD and online (after you've registered).

As far as fine-tuning our aforementioned model with the extra appendages, we had to reshoot a couple of frames, recalibrate the images, and generate a new wireframe—which aptly summarizes the UZR 3D Pro story: It's a fun app that's much more useful if you have a traditional 3D-modeling app on hand for adding the final polish.—Paul Yoon



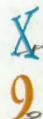
Once you're done constructing your model, throw it into a ray tracer to see it all lit up and shiny.

Once you mask out the images, UZR 3D uses the calibration information with the image data and constructs the model.

You can export the constructed model in your choice of seven formats: UZR, Cinema 4D's C4D, 3D Studio Max's 3DS, Alias|Wavefront's OBJ, AutoCAD's DXF, STL (stereolithography), and good old VRML (virtual reality markup language). We were pretty happy with our models, but invariably there was some extra appendage we couldn't get rid of. Therein lies our main beef with UZR 3D—while it's a snap to whip up

Mad Mask: Beyond the Lasso

If you prefer to work in Photoshop for your masking needs, no problem. UZR 3D Pro recognizes layered PSD documents with alpha channels and automatically uses them for masking. For us dopes who accidentally get the mask backward, there's even an option to swap the subject and background masks. Calibrate them first in UZR 3D, though—if you spend a lot of time masking out backgrounds and then find the program can't calibrate the images, that's time wasted.



COMPANY: UZR
CONTACT: <http://uzr.de>
PRICE: €516.38 (\$558.75 USD at press time)

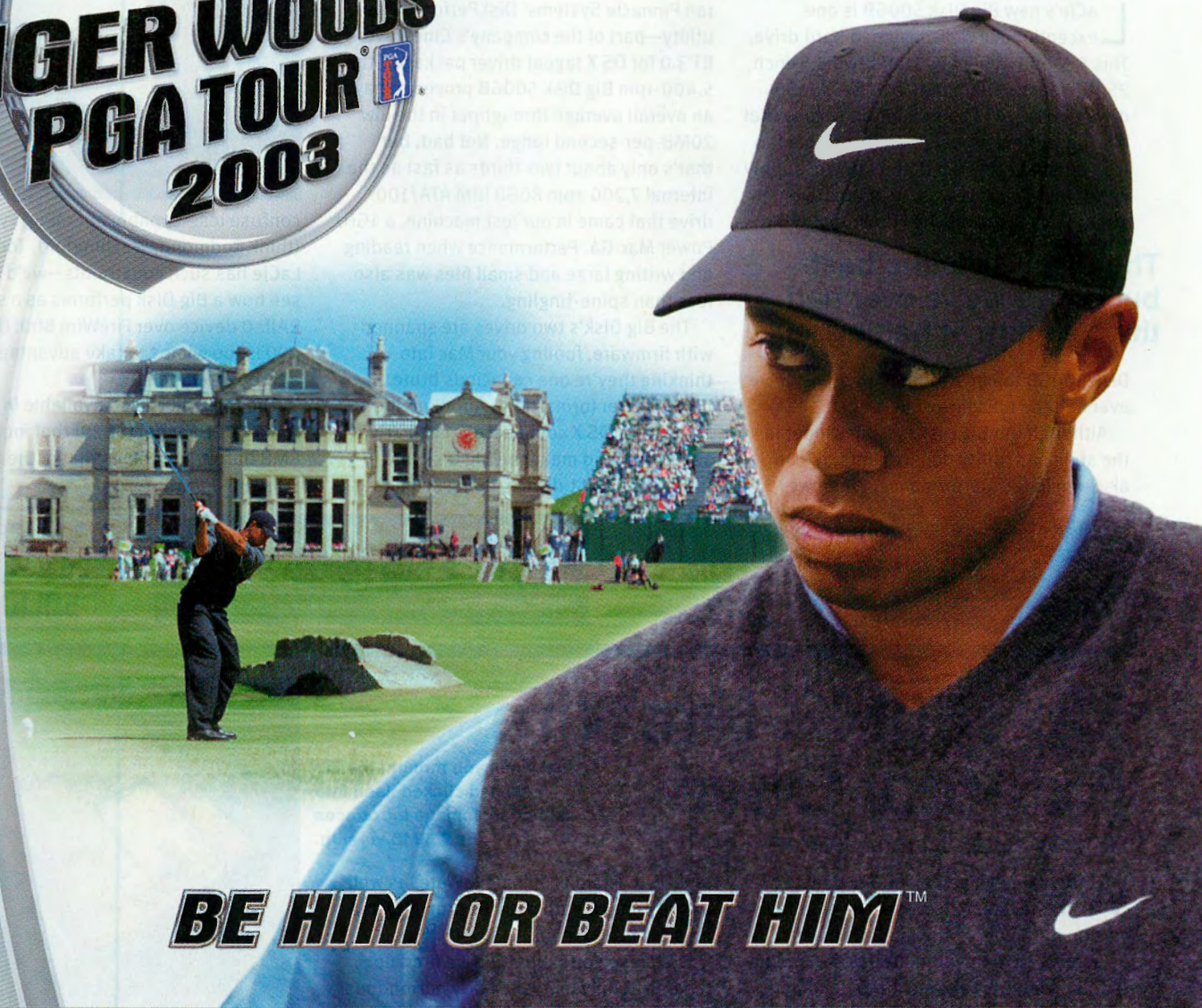
REQUIREMENTS: 733MHz G4,
Mac OS 10.1.5 or later

GOOD NEWS: Easy and straightforward. Supports many common 3D formats. Clever idea.
BAD NEWS: Laborious masking and weird tool interface takes some getting used to. Sparse documentation. Tough to troubleshoot.

MacAddict RATED

GREAT

EA
SPORTS™
TIGER WOODS
PGA TOUR®
2003



ASPYR™
Authorized Electronic Arts™ Distributor

www.aspyr.com



TIGER WOODS



© 2002 Electronic Arts Inc. Electronic Arts, EA SPORTS, the EA SPORTS logo and "Be Him or Beat Him" are trademarks or registered trademarks of Electronic Arts Inc. in the U.S. and/or other countries. All rights reserved. The name, likeness and other attributes of Tiger Woods reproduced on this product are the trademarks and copyrighted designs, and/or other forms of intellectual property, that are the exclusive property of those licensors and may not be used, in whole or in part, without their respective written consent. PGA TOUR, PGA TOUR and Swinging Gopher design, TPC, TPC and Swinging Gopher design, TOURNAMENT PLAYERS CLUB, TPC at Sawgrass and TPC of Scottsdale are trademarks of PGA TOUR, Inc. and used by permission. Pebble Beach, Pebble Beach Golf Links, The Lone Cypress, the Pebble Beach logo, and individual golf hole designs are trademarks, service marks, and trade dress of Pebble Beach Company. Used under license by Electronic Arts Inc. Poppy Hills Golf Course is a trademark of Poppy Hills, Inc. Pinetree Course Pinetree and The Pinetree Resort Logo are trademarks of Pinetree Corporation. Royal Birkdale and The Royal Birkdale Golf Club are trademarks of The Royal Birkdale Golf Club Merchandising Company Ltd. Colonial Country Club events and logo are registered trademarks of Colonial Country Club. © 2002 Colonial Country Club. All rights reserved. Bay Hill is a trademark of THRM, Inc. © 2002 THRM, Inc. All rights reserved. Torrey Pines Golf Course under license from The City of San Diego. Electronic Arts Inc. is the official licensee of St Andrews Links for Tiger Woods PGA TOUR® 2003. EA SPORTS™ is an Electronic Arts™ brand. The ratings icon is a registered trademark of the Interactive Digital Software Association. The Aspyr logo is a trademark of Aspyr Media, Inc. Mac and the Mac logo are trademarks of Apple Computer, Inc., registered in the U.S. and other countries. All other trademarks are the property of their respective owners.

Big Disk

500GB FIREWIRE HARD DRIVE

LaCie's new Big Disk 500GB is one exceptionally well-designed hard drive. This 5.5-pound big boy stuffs two 3.5-inch, 250GB Maxtor DiamondMax 16 ATA/133 drives into a solid aluminum-alloy case that dissipates heat so well that an internal fan isn't needed—the fact that its power supply is external helps as well. Its industrial-strength case makes the FireWire 400 Big

The Big Disk is the best-built drive we've ever had the pleasure of hefting.

Disk 500GB the best-built hard drive we've ever had the pleasure of hefting.

Although the Big Disk is a big winner in the style and utility departments, it's an also-ran in raw performance. When we

In both weight and capaciousness, the hefty Big Disk redefines humongous.

ran Pinnacle Systems' DiskPerformance utility—part of the company's CinéWave RT 3.0 for OS X Jaguar driver package—the 5,400-rpm Big Disk 500GB proved to have an overall average throughput in the low 20MB-per-second range. Not bad, but that's only about two-thirds as fast as the internal 7,200-rpm 80GB IBM ATA/100 drive that came in our test machine, a 1GHz Power Mac G4. Performance when reading and writing large and small files was also less than spine-tingling.

The Big Disk's two drives are spanned with firmware, fooling your Mac into thinking they're one capacious brute (467GB after formatting). Although it'd be a plus if OS X could access each drive separately and make the Big Disk into a RAID 0 or RAID 1 device, doing so might



confuse less-capable operating systems (think Redmond, Washington). Too bad LaCie has such constraints—we'd love to see how a Big Disk performs as a striped RAID 0 device over FireWire 800. (FireWire 400 is too wimpy to take advantage of such a throughput boost.)

The Big Disk is also available in a 7,200-rpm 400GB model (\$829) that includes an 8MB buffer, four times that of the Big Disk 500GB.—*Rik Myslewski*



COMPANY: LaCie
CONTACT: 800-844-4502,
www.lacie.com
PRICE: \$949

REQUIREMENTS: FireWire-equipped
Mac, Mac OS 8.6 or later

GOOD NEWS: Built like a brick. Quiet operation. Enormous capacity. Unobtrusive external power brick.
BAD NEWS: Lacks RAID capability despite two internal drives. Mediocre performance. Rotational speed of only 5,400 rpm.

MacAddict RATED
SOLID

Zip 750MB FireWire External Drive

REMOVABLE-MEDIA DRIVE

When Iomega came around showing off the latest Zip drive, the emphasis was on durability of the media, specifically as compared to the ubiquitous CD-R media that, incidentally, is even more prevalent today than Zip disks were in their heyday.

This sucker's loud.

As the name implies, the Zip 750 packs 750MB onto each disk; the drive can also read older Zip disks (100MB and 250MB), as well as format and write to the 250MB variety. Older Zip drives, however, can't read the new 750MB Zip disks.

The box includes everything you need to use the drive, including a FireWire cable

and OS X versions of IomegaWare, as well as the Iomega Automatic Backup app and MusicMatch Jukebox.

So far, so good. But then we fired up the beast, only to hear a fairly horrendous *ganking* noise that sounded as though it would have crunched a disk if we had inserted one before plugging in the drive (note to self...). When we inserted a Zip disk, we heard the rest of the drive's vocabulary: a general whine whenever the drive accesses the disk, and a louder, abrupt whir when the disk spins up after a few minutes' rest. We're not being oversensitive either—this sucker's loud.

Iomega claims 7.3 MBps speeds (50X in CD-R terms), which sounds better than our

Just when you thought the Zip drive had clicked itself into extinction, Iomega introduces the 750MB version.



punk 48X CD burner, but in a head-to-head race, copying 5,131 files totaling 690MB, the Zip 750 took 4:30 compared to the 48X burner's time of only 3:20. And frankly, we were surprised the Zip was so fast; copying the test files back from the Zip 750 to the Mac took 4:52.

There's no denying that a Zip disk is more durable than a CD, but if you value a quiet workspace, you'll find a way to live without this drive.—*Niko Coucouvanis*



COMPANY: Iomega
CONTACT: 800-697-8833, www.iomega.com
PRICE: \$199.99 (disks are \$14.99 each, \$99.99 for an eight-pack)

REQUIREMENTS: FireWire-equipped
Mac, Mac OS 8.6 to 9.x or 10.1 or later

GOOD NEWS: Respectably fast. High-capacity disks.
BAD NEWS: Disturbingly loud. Disks are expensive (and you don't get one with the drive).

MacAddict RATED
SO-SO

Artisan Color Reference System (GDM-C520K)

21-INCH CRT DISPLAY WITH COLOR CALIBRATOR

Sony's ridiculously named GDM-C520K is actually a 21-inch CRT display—a gorgeous specimen with a dark-gray cabinet, a crystal-clear flat screen, and bundled color-calibration hardware and software (hence the hefty price tag).

First, the display itself: This 21-inch flat-screen has a maximum resolution of 2,048 by 1,536 pixels, though the recommended resolution is 1,600 by 1,200 pixels at 85Hz; its aperture-grille pitch is a tight 0.24mm. The display quality is fantastic, with bright colors, great neutral grays, and crisp, clear small text. As an added bonus, you can hook up two VGA-connected computers

to the monitor and flip a switch on the front to toggle back and forth between them.

The real reason to buy the Artisan GDM-C520K, however, is its integrated color-calibration system. Packed in what looks like a silver mind-control orb from *Logan's Run*, the calibrator suctions onto your display and plugs into an available USB port (the keyboard port works fine). The display itself also connects to your computer via USB in conjunction with the normal VGA connection. Launch the Artisan software, and the calibrator creates a brilliant red, green, blue, and gray light show on your screen. The sensor and



PHOTOGRAPH BY MARK MADEO

This stunning flat-screen CRT with hardware calibration has an equally stunning price tag.

software take ambient light into account when calibrating the red, blue, and green guns in the display.

For the designer who can afford one, the Sony Artisan GDM-C520K will provide much joy and happiness. You'll get a high-quality display and reliable hardware color calibration.—Narasu Rebbapragada

2

COMPANY: Sony
CONTACT: 800-282-2848,
www.displaysbysony.com
PRICE: \$1,799.99

REQUIREMENTS: G3, Mac OS 9.2.2
or 10.1.3 or later, 96MB RAM, two open
USB ports

GOOD NEWS: Great display. Reliable color calibrator.
BAD NEWS: Expensive.

MacAddict RATED
GREAT

Hearing is believing.

Macworld
**BEST
OF SHOW**
2002

Sonica™

high-fidelity USB audio upgrade for Mac <
supports AC3 and DTS surround output <<
simple USB connectivity
24-bit/96kHz analog + optical digital outputs



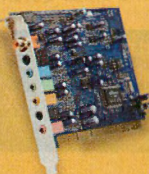
Sonica Theater™

only USB solution for surround up to 7.1 <
high-fidelity 24-bit/96kHz audio output <<
professional 24-bit/96kHz recording
real-time stereo-to-surround conversion



Revolution™

only PCI solution for surround up to 7.1 <
high-definition 24-bit/192kHz audio output <<
professional 24-bit/96kHz recording <
real-time stereo-to-surround conversion <
incredible 107dB SNR provides pristine audio



M-Audio's solutions deliver immersive surround sound on your Mac rivaling even the best movie theaters. Games, movies, and music—even your stereo CDs and MP3s—all sound more alive and intense with M-Audio surround solutions. Now you can enjoy high-definition 24-bit/192kHz audio fidelity and digital output of popular surround formats including Dolby Digital and DTS. And all this advanced technology is as easy to use as your Mac.

Only one name is found in more studios and used by more music professionals than any other: M-Audio. Now we've distilled all that experience into the highest-quality, easiest-to-use home surround sound solutions available.

Get M-Audio. Get M-Powered.

available at:
COMPUSA
WHERE AMERICA BUYS TECHNOLOGY.

M-AUDIO®
www.m-audio.com/believe

Freedom Force

ROLE-PLAYING GAME

Slip into your most colorful tights and come join the Freedom Force in Patriot City. Prepare to squash hordes of rampaging supervillains, dinosaurs, robots, and the alien minions of the evil Lord Dominion.

Freedom Force, a nostalgic tip of the hat to Silver Age comic heroes, is a squad-based, tactical role-playing game that takes RPG elements out of castles and

It's more fun than a barrel of cape-clad monkeys.

dungeons and plops them down in the middle of Main Street, USA. And it's more fun than a barrel of cape-clad monkeys.

In true comic-book style, the villainous alien Lord Dominion has decided to

El Diablo, one of Freedom Force's top superheroes, blasts dinosaurs with high-intensity flames.

sprinkle Energy-X—a mysterious, superpower-creating substance—on Earth's nastiest criminals, creating a race of supervillains to help him destroy the good guys. But a rebel alien steals Energy-X and flees. As fate would have it, the rebel gets shot down and canisters of purple gook rain on our planet, affecting good and evil folks alike.

MinuteMan (one of the good ones) quickly builds his Freedom Force, adding other Energy-X affected superheroes. Missions are squad based, with up to four heroes taking on primary and secondary objectives. You get experience points for succeeding, and you can use them to upgrade your superpowers.



The missions and battle sequences are such fun that you'll want to try missions again with different squads just to see how they turn out. You'll fight a wide array of creatures and robots, and you can use all manner of interactive objects in the fray. Need a club? Uproot a lamp post. Want to throw something? Pick up the nearest car. This game rocks. 'Nuf said.—John Lee



COMPANY: MacPlay
CONTACT: 214-855-5955,
www.macplay.com
PRICE: \$39.99

REQUIREMENTS: 400MHz G4, Mac OS 10.1.5, 192MB RAM, any ATI Radeon or nVidia GeForce video card

GOOD NEWS: Colorful comic visuals. Solid strategy game. Pure fun to play.
BAD NEWS: You'll be tempted to wear a cape and leotards in public, and that's a no-no.

MacAddict RATED
●●●●●
GREAT

F1 Championship Season 2000

RACING GAME

Gamers, start your engines. You're about to plunge into the rushing, roaring world of Formula One racing. F1 Championship Season 2000 puts you on the track (17 of them, actually) to race against all the big-name drivers or up to seven of your friends on a local network.

Rookies will want to start with Formula One Driving School, where you learn the basics of F1 driving, such as starting the race and taking tight turns.

As you become a better F1 driver, you'll appreciate this sim's realistic physics and almost infinite customizability; you can adjust every mechanical aspect of your car, as

well as track and weather conditions and the skill level of your computer-controlled opponents.

The driving is intense, with cheering spectators, skidding tires, and the guttural sound of engines ringing in your ears. If you bang into someone, the damage affects your car's performance. Most damage can be fixed in pit stops, but these take up time.

Choose from 22 authentic cars (go, Minardi!) and take them out on any of 17 authorized tracks, from the Indianapolis Motor Speedway to the streets of Monte Carlo. There are four driving modes. Test Day allows a choice of track and as many laps as you wish, with no time limit. Quick



Cockpit view—scant inches from the ground in these low-slung muscle machines—heightens the feel of speed.

Race pits you against competition in a single race. Grand Prix gives you a weekend of racing on the circuit. And finally, there is the Championship Season itself, with cutthroat races at all 17 tracks.

A promised force-feedback patch should be available by the time you read this, which will add to the white-knuckle fun that is F1 Championship Season 2000.—John Lee



COMPANY: Feral Interactive
CONTACT: www.feral.co.uk
PRICE: \$49.95

REQUIREMENTS: 333MHz G3 (500MHz recommended), Mac OS 9.1 or 10.1 or later, 128MB RAM, 32MB 3D graphics card, OpenGL 1.2

GOOD NEWS: Life in the fast lane. Muscle cars. Tons of options. Keen feel for speed.
BAD NEWS: Requires a hot-rod Mac to keep the traffic moving.

MacAddict RATED
●●●●●
GREAT

SuperScrubber

DISK-SANITIZING UTILITY

It's 11 o'clock—do you know where your personal information is? Are you *sure*?

You know the story: Evil hackers comb the Internet for social-security numbers, credit-card and bank-account information, and other sensitive data that they can then use to do anything from funding a quick

Peace of mind is easily worth 30 bucks.

shopping spree to completely destroying your credit rating by opening and abusing new lines of credit.

And it's not just through the Internet—there are plenty of ways your personal information can fall into the wrong hands.



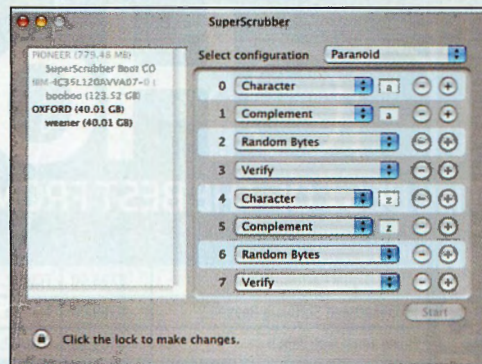
COMPANY: Jiiva
CONTACT: 503-520-9500, www.jiiva.com
PRICE: \$29.99

REQUIREMENTS: Any Mac capable of running Mac OS 10.2, 128MB RAM, CD drive

SuperScrubber protects your personal information by completely obliterating it.

SuperScrubber's trick is scrubbing your hard drive clean so you can sell your Mac, give it away, or (perish the thought) landfill it—without worrying about whether you deleted all your sensitive information. Think you're safe because you deleted everything? Think again. With a little technical savvy and the right data-recovery tools, anyone can recover data you thought you erased. That's because the data is still there until you save enough data on the disk to overwrite it—and even then residual data remains.

SuperScrubber attacks the problem head-on, writing gibberish to a disk and then overwriting it with more gibberish successively until there's no trace of your original data. The process can take some



time, so it's good that SuperScrubber has preconfigured levels of cleaning: Simple, Simple + Verify, Strong, Military, and Paranoid.

Paranoiacs that we are, we went full-bore and put a Paranoid clean on our internal 10GB drive in just over 3 hours (Simple took less than 15 minutes).

If you're so paranoid that you don't even put sensitive data on your Mac to begin with, you don't need this app—for almost anyone else, though, the peace of mind is easily worth 30 bucks.—*Niko Coucouvanis*

GOOD NEWS: Military-level disk sanitization for \$30.
BAD NEWS: Makes you feel paranoid.

MacAddict RATED
GREAT

CopyPaste-X 1.5.1

CLIPBOARD ENHANCER

Every so often a piece of shareware comes along that makes us wonder how we ever lived without it—such is CopyPaste-X, the turbo Clipboard utility on steroids.

CopyPaste-X augments the good old Mac OS Clipboard in all kinds of ways: It lets you record and remember Clipboard items, edit Clipboard contents, save copied text (and pictures) to an archive, and the main attraction: use ten Clipboards simultaneously, typing Command-C and a number to differentiate between them. Handy floating palettes keep your clippings onscreen; you can minimize the palettes, or hide them entirely and access your boards via keystrokes, contextual menus, and the CopyPaste Dock icon.



If you use the clipboard, you'll love CopyPaste.
—*Niko Coucouvanis*



Ten concurrent Clipboards? Yes, please!

COMPANY: Script Software
CONTACT: www.scriptsoftware.com
PRICE: \$20 (shareware)

REQUIREMENTS: Power Mac, Mac OS 10.1 or later

GOOD NEWS: Gives you tons of Clipboards.
BAD NEWS: Redundant in some apps.

MacAddict RATED
GREAT

HomePlug Ethernet Bridge

NETWORK BRIDGE

Unlike the rest of logear's PowerLine gear, which networks PCs through a building's electrical power lines, the platform-independent HomePlug Ethernet Bridge plays nice with Macs. The problem is, it doesn't do much;

it simply bridges your Mac—or LAN hub, DSL modem, printer, or any network node—to another node. Say you've got an office in the attic and an old laser printer chained up in the basement. Buy two HomePlug units, attach one between the Mac's Ethernet port and a standard AC wall outlet, and attach the other to the printer. Voilà—no Ethernet cable strung throughout the house or office.

HomePlug's throughput (14 Mbps), range (990 feet of power line), and plug-and-play ease of use make it a respectable bridge, but in a Mac environment, its uses are limited.—*Niko Coucouvanis*



PowerLine networking would be cool—if it worked on Macs.

COMPANY: logear
CONTACT: 949-453-8782 or 866-946-4327, www.iogear.com
PRICE: \$79 per unit (street)

REQUIREMENTS: Ethernet-equipped Macs and/or devices located near AC power outlets

GOOD NEWS: Supremely handy for specific uses.
BAD NEWS: Essentially worthless for most of us.

MacAddict RATED
SOLID

theHotList

THE BEST OF THE BEST FROM RECENT REVIEWS

SOFTWARE

AUDIO

MOTU Digital Performer 3	\$795.00	Feb/02, p58	Pro audio app has a great array of features.
PropellerHead Software Reason 2	\$399.00	Mar/03, p50	The best software-synth bargain available today.
Roxio Toast with Jam 5	\$189.95	Sep/02, p49	Burn CDs, MP3 CDs, DVDs, and edit audio.

GAMES

Ambrosia Escape Velocity: Nova	\$30.00	Sep/02, p48	Enjoy the perverse thrill of galactic domination.
Aspyr Clive Barker's Undying	\$39.95	Nov/02, p50	Sophisticated shooter has a chilling story line.
Aspyr Jedi Knight II: Jedi Outcast	\$49.95	Feb/03, p37	Fantastic gameplay with weapons and the Force.
Aspyr Medal of Honor: Allied Assault	\$50.00	Oct/02, p43	WWII first-person shooter is a surefire classic.
Aspyr Return to Castle Wolfenstein	\$49.95	Aug/02, p42	What's more satisfying than killing zombie Nazis?
Aspyr The Sims Hot Date	\$29.95	Sep/02, p46	The Sims obey Petula Clark and go downtown.
Graphic Simulations Black and White	\$50.00	Jun/02, p54	The battle between good and evil can really be a blast.
MacPlay Icewind Dale	\$49.99	Aug/02, p51	Beautifully rendered RPG offers deep gameplay.
MacPlay No One Lives Forever	\$49.99	Mar/03, p49	A beautiful spy, sly foes, nifty gadgets, fast action—nice.
MacSoft Max Payne	\$40.00	Dec/02, p42	Max seeks revenge—and gets plenty of it—in this FPS.

GRAPHICS AND LAYOUT

Adobe InDesign 2.0	\$699.00	May/02, p50	Look out, Quark—Adobe's rival layout tool kicks butt.
Adobe Photoshop 7	\$609.00	Jul/02, p46	Picture-perfect pixel pusher moves to Mac OS X.
Adobe Photoshop Elements 2	\$99.00	Dec/02, p40	It has most of Photoshop's power for \$500 less.
Macromedia Director MX	\$1,199.00	Mar/03, p46	Multimedia developers need look no further than Director.
Macromedia Dreamweaver MX	\$399.00	Sep/02, p44	Our favorite Web-design tool gets a strong upgrade.
Macromedia Flash MX	\$499.00	Jul/02, p51	It started in animation; now it can do anything.

PRODUCTIVITY AND UTILITIES

Bare Bones Software BBEdit 7.0.1	\$179.00	Mar/03, p52	By far the best text editor money can buy.
Dantz Retrospect Express 5.0	\$79.00	Aug/02, p50	Indispensable backup software goes Mac OS X.
Microsoft Office v. X	\$499.00	Feb/02, p42	The 800-pound gorilla of productivity applications.

VIDEO AND ANIMATION

Adobe After Effects 5.5	\$649.00	May/02, p49	Motion-graphics stud improves its 3D powers.
Apple DVD Studio Pro 1.5	\$999.00	Oct/02, p55	Apple's essential DVD-burning app gets even better.
Apple Final Cut Pro 3	\$999.00	Apr/02, p45	Pro-level video editor is a real-time revelation.

HARDWARE

AUDIO

Apple 20GB iPod	\$499.00	Nov/02, p45	More storage, cool accessories—it's all good.
Digidesign Mbox	\$495.00	May/02, p59	Audio interface is a traveling musician's delight.

DIGITAL CAMERAS

Canon PowerShot S230 Digital Elph	\$399.00	Mar/03, p48	Great 3.2-megapixel camera in a tiny, low-cost package.
Nikon Coolpix 885	\$549.99	Feb/02, p61	Cute, capable camera captures great images.
Olympus C-4000 Zoom	\$499.00	Jan/03, p52	Great image quality, 4 megapixels, and versatile controls.

DISPLAYS

Apple Cinema HD Display	\$1,999.00	Aug/02, p40	This 23-inch, 1,920-by-1,200-pixel beauty inspires lust.
Formac gallery 2010	\$1,699.00	Jan/03, p47	Bright, fast, and huge—and it costs only \$.0009 per pixel.

PRINTERS

Brother 1870N	\$699.00	Aug/02, p45	Need a sturdy laser printer? This one's a workhorse.
Epson Stylus Photo 2200	\$699.00	Oct/02, p42	The most stunning photo printer we've ever tested.

SCANNERS

Canon CanoScan LIDE 30	\$99.00	Nov/02, p52	Entry-level scanner gets the job done inexpensively.
Epson Perfection 2450 Photo	\$399.00	Oct/02, p48	Sophisticated scanner also handles transparencies.

STORAGE

Maxtor Personal Storage 5000XT	\$399.99	Feb/03, p44	Solid construction, push-button backup, and 250GB.
TDK veloCD	\$315.99	Jul/02, p54	FireWire-equipped CD-RW drive is freaky fast.
WiebeTech MicroGB 40GB	\$399.95	Jul/02, p56	Cool aluminum FireWire hard drive holds speedy innards.



Don't you wish you were half as cute and powerful?

NEW THIS MONTH: PowerShot S230 Digital Elph

Canon

\$399

Mar/03, p48

Don't let this sweet little camera's diminutive size and good looks fool you—the Canon PowerShot S230 Digital Elph is no mere toy. This 3.2-megapixel beauty comes equipped with a 2x optical zoom and a 1.5-inch color LCD screen, plus enough preset modes and photo effects to keep you snapping happily into the night—and it has a powerful Lilon rechargeable battery that'll keep those snaps a-snappin'. It's so small—think Altoids tin—that you'll be tempted to make it your constant companion. As reviewer Kris Fong said, "We'd gladly take the S230 with us everywhere to get nice, high-resolution images."

Introducing... your next desktop computer.



This is the year of the notebook computer - stand.

The iCurve - Invisible Laptop Stand is the key to replacing your desktop machine with a new notebook. It elevates your screen to a comfortable eye-level height. It raises the notebook off the desk - making room for a full-size keyboard and mouse. And it helps air circulate and keep your new 'hot' laptop cool.

Gain portability without sacrificing desktop comfort. Add an iCurve to your notebook and have the best of both worlds.



iCurve
Invisible Laptop Stand



**JUST
\$35⁰⁰**

iMic

USB Audio Interface

- Adds stereo audio input to your Mac
- Plug-and-Play, no software required
- Portable, no installation or power needed
- Supports MP3, QuickTime and AIFF files

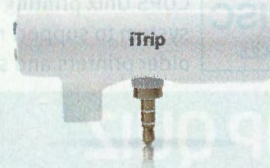


**JUST
\$39⁹⁹**

iCurve

Invisible Laptop Stand

- Raises screen to the perfect height
- Cools laptop for optimum performance
- Clears desk for full-size keyboard & mouse
- Specifically designed for iBooks & TiBooks



**ONLY
\$35⁰⁰**

iTrip

FM Modulator for iPod

- Play your iPod through any FM radio station in your car, truck or boat
- iPod Powered - no battery necessary
- Fits perfectly on top - no dongle or cable

Now you have two **easy** ways to purchase your Griffin Technology product directly.
Order by phone at 615-399-7000 or **order online** at www.griffintechology.com.

GRIFFIN TECHNOLOGY

ORDER NOW **615-399-7000**

www.griffintechology.com

64 HOW TO

because inquiring minds have the right to be inspired

GOT A QUESTION?
NEED ADVICE?

ask us

WE
CAN
HELP

MULTIPLE IP PERSONALITIES

How can I give my Ethernet port multiple IP addresses in OS X?

Open the Network system preference pane and select Network Port Configurations from the Show pop-up menu to see a list of all your available network ports. Highlight your Ethernet port in the list and click the Duplicate button. Name it whatever you want and click the Apply Now button. You can now give the duplicate Ethernet port another IP address.

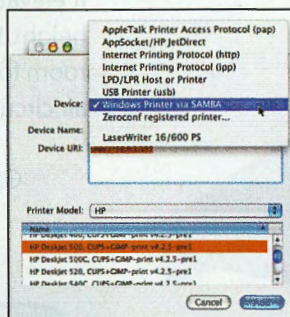
PRINTERS AND WINDOWS

How can I print to a shared Windows printer in Mac OS X?

Use Gimp-Print (free, <http://gimp-print.sourceforge.net/MacOSX.php3>), which enhances Mac OS X's CUPS Unix printing system to support many older printers and shared



Windows printers with available print drivers. Install Gimp-Print, open the Print Center application (Applications > Utilities), hold down the Option key (this unlocks the extra print options), and click the Add button. From the top pop-up menu, select Advanced to get access to additional device choices. From the Device pop-up menu, select Windows Printer Via SAMBA and enter the IP address of the computer hosting the printer.



Reach out and share a Windows printer.

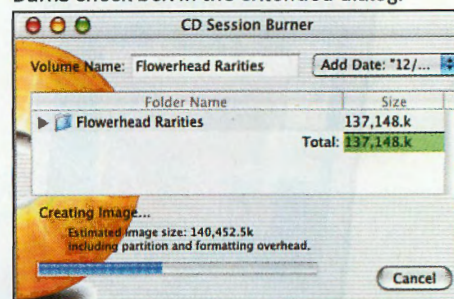
THE MULTISESSIONS

How can I create multisession CDs in OS X?

Multisession CDs let you conserve CD media by burning data to only a portion of the CD, the remainder of which you can burn later. There are three ways to create them. The fastest way is to use Roxio's Toast (\$99.95, www.roxio.com). The next-fastest—and cheaper—way is to use a utility called CDSession Burner (\$17, www.sentman.com/burner). Or you can use OS X's built-in utility, Disk Copy—it's free, but it's not easy. To use Disk Copy, create a disk image (File > New > Blank Image) just a little bigger than the data you want to burn to CD. Next,



copy the data to the disk image you just created. Finally, select Burn Image from the File menu and select the Allow Additional Burns check box in the extended dialog.



You can make multisession CDs on the cheap with CDSession Burner

X-RATED BOOKMARKS

How can I transfer my OS 9 Web bookmarks to OS X?

If you use Internet Explorer, drag the file Favorites.html (aka your bookmarks) from the System Folder (System Folder > Preferences > Explorer) to your OS X user folder (Users > user name > Library > Preferences > Explorer folder). If you use Netscape, drag the file Bookmarks.html from your System Folder (System Folder > Preferences > Netscape Users > user name) to your OS X user folder (Users > user name > Library > Mozilla > Profiles > user name).

MORE WORKGROUP NAME CHANGES

Is there an easy way to create custom workgroup names for Windows file sharing?

In the January 2003's Ask Us section, we showed you how to use the Terminal to

POP QUIZ

Quick Answers to Quick Questions

REUSE, RECYCLE

I've upgraded the hard drive in my iMac—what can I do with the old drive?

Turn it into an external FireWire hard disk with a FireWire drive enclosure such as the OWC Mercury FireWire Case Kit with Oxford 911 Chipset (\$94.99, www.macsales.com).

FAKE WINDOWS ERASE

Where is that cool Web site that makes it look like your computer is erasing Windows and installing the Mac OS?

Check out www.yaromat.com/mac08

Apple IIe games like Berzap can be yours again—in OS X.

/index.htm. It looks a little dated now, but it's still funny.

DESKTOP ASAP

What's the fastest way to navigate to the desktop in Open and Save dialog boxes?

Use the Command-D keyboard shortcut.

APPLE IIe IN TEN

How can I run Apple IIe software in OS X?

Get an Apple IIe emulator like OSXII



(freeware, <http://apple2.intergalactic.de>). For more information about emulators, check out www.emulation.net.

FULL FRONTAL USB

Can I install a front-panel USB hub in my G4?

If you have a pre-Quicksilver G4 or a

DIFFICULTY RATINGS



No whining—
anyone
can do this!



It'll take some
effort, but you
can do it.



This stuff's
for the pros.

UNIX UNIVERSITY

Your Monthly Dose of Unix Instruction

THE MAN SHOW

How can I find and learn about Unix commands in the Terminal?

Use the man command, which brings up Unix's built-in manual pages. For example, type **man tcpdump** to get the exact name, switches, and full description of the tcpdump command. If you forget the exact name of a command, use the -f and -k switches to do a search. For example, type **man -f password** to get a list of commands pertaining to passwords. Type **man -k password** to perform a keyword search for password.

```
Terminal — tcsh (tty2)

Last login: Wed Jan 11 11:54:23 on tty2
Welcome to Darwin!
[flower-X11~] buzzk man -f password

getpass(3)          - get a password
getpwent(3), getpwnam(3), getpwuid(3), setpassent(3), setpwent(3)
ratlons
getpass(3)          - get a password
getpwent(3), getpwnam(3), getpwuid(3), setpassent(3), setpwent(3)
ratlons
ldappasswd(4)       - change the password of an LDAP entry
passwd(1)           - compute password hashes
```

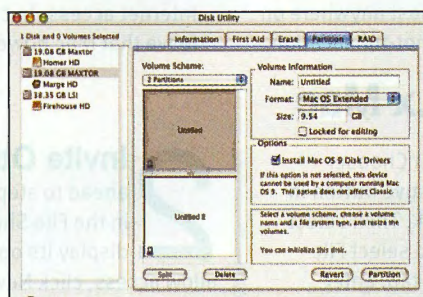
Unix-command question?
Stick it to the Man.

create custom workgroup names in Jaguar's built-in Windows file sharing. *MacAddict* reader Ben Apollonio showed us an easier way using the OS X Directory Access application (Applications > Utilities): Check the SMB box in the Services pane, click the Configure button, and type in the new workgroup name.

PART YOUR DRIVE

How do you partition a drive in OS X?

Boot your computer to your OS X Install CD (restart while holding down the C key) and choose Open Disk Utility from the File menu. With the Disk Utility open, highlight your disk on the left side and click the Partition tab. From the Volume Scheme pop-up choice, choose the number of partitions you wish to create and then click the Partition button in the lower-right corner. Remember: Partitioning erases the hard drive completely, so back up your data first.



You partition your drive like you'd part your hair, sort of.

Submit technical questions or helpful tips directly via email (askus@macaddict.com) or via snail mail to *MacAddict*, 150 North Hill Dr., Brisbane, CA 94005.



Six years of tech support for Apple, Power Computing, and a Texas school district have given Buz Zoller Mac superpowers.

Blue-and-White G3 with a 3.5-inch drive bay below the optical drive, you can install USB where a Zip drive would usually go. Check out StarTech's 2 FireWire 4 USB 3.5 Bay Front Panel Hub (\$73.99, www.startech.com).

THAT DARN TRASH!

Why can't I empty my Trash?

The most common reason is that your Trash items are locked. Highlight them, select Get Info from the File menu, and uncheck the Locked check box.

FREE FILE CONVERSION

What's the cheapest way to convert JPEGs to TIFFs?

Use the OS X Preview application. Open

your TIFF, choose Export from the File menu, and choose the format to which you want to convert it.

STOP MOVING

I'm trying to drag a file into a folder in the Dock, but items in the Dock keep moving. Make it stop.

Hold down the Command key while dragging and the Dock will stay in place.

X ANIMATED GIFS

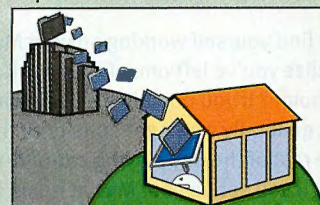
How can I create and view animated GIFs in OS X?

Try Stone Design's GIFFun (free, www.stone.com). Drag your GIF file onto the Apple Preview app icon to see all the frames.

ThisMonth

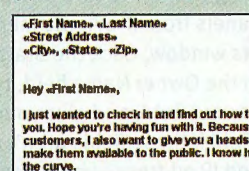
66 Share Files Remotely

"The dog ate my homework" is no longer a valid excuse in our digital age. Neither is "I left my work at home." To alleviate your absent-minded self, we show you how to tap into a Mac remotely and grab those all-important files.



70 Personalize Your Form Letters

Ever get that warm, fuzzy feeling when you read a letter that opens with "Dear valued reader?" Neither do we. But if you must send out standard form letters to clients,



customers, and the like, here's how to personalize even the most generic mailings.

72 Create Photo-Realistic Shadows

It's easy to cast doubt or cast your vote,



but casting a shadow where one never fell gets a bit trickier. If you don't want a photo-composited subject to float within its background, create a shadow.

74 Create a Video CD

You may be pinching pennies to save up for a DVD burner, but in the interim, you can play your iMovie masterpieces on the boob tube via a standard DVD player. Here's how.



Share Files Remotely

by Carol S. Holzberg and Kris Fong



WHAT YOU NEED

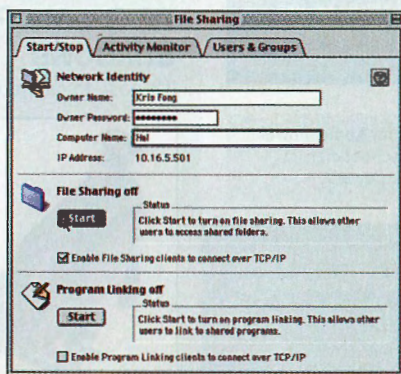
- Two Macs running Mac OS 9.x or Mac OS X
- An Internet connection

Ever find yourself working on your Mac at the office when you realize you've left one of your work files (and/or your brain) at home? If you don't live a convenient 15 minutes away, your work generally won't get done until the next day (and you'll spend the rest of the day playing cat-and-mouse with your boss). Of course, if you set up your Mac at home for remote access, you can have all your files at your fingertips from almost anywhere on the planet—well, except maybe in some remote hot-tub location.

Share Files on an OS 9.x Mac

1 Start Sharing In the Finder, select Chooser from the Apple menu, and engage the Active button in the resulting window to turn on AppleTalk. Then select Control Panels from the Apple menu, and select File Sharing to open its window. Click the Start/Stop tab, enter your user name in the Owner Name field, type your password in the Owner Password field, and give your Mac a name in the Computer Name field if these fields aren't already filled in. Jot down the displayed IP address—you'll need it to connect (if you have a dynamic IP address, don't disconnect from the Internet or the number will more than likely change). Check the Enable File Sharing Clients To Connect Over TCP/IP box and then click Start to enable File Sharing.

Click Start and then wait for File Sharing to finish starting up before you close the window.



3 Allow Wake-up Calls To share files, you need to keep the computer that serves them turned on. However, if this Mac is set to go nighty-night and allows the screen saver to kick in, you won't be able to connect to it unless you set it to wake up on call. From the Apple menu, select Control Panels, then Energy Saver. Click the Advanced Settings tab and in the Wake Options section, check the top two boxes; this forces your Mac to wake from slumber when you or your friends try to access the machine remotely. (If these settings are missing from your Energy Saver control panel, set your Mac to never sleep.) If you connect to the Internet via a modem, check the bottom box too.

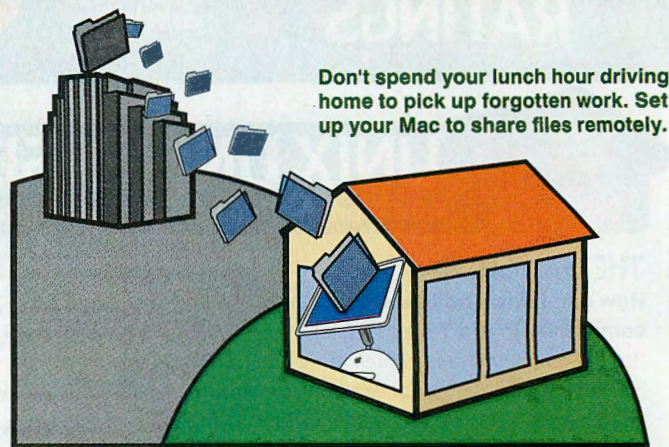
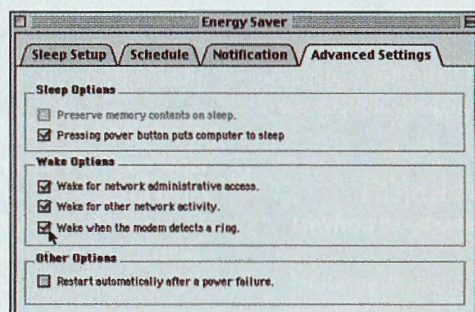
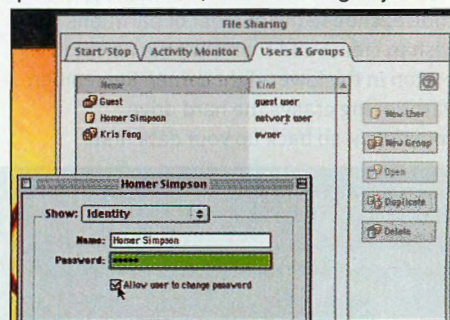


ILLUSTRATION BY LESLIE OSBORN

Whether your soon-to-be-file-serving Mac is running Mac OS 9.x or Mac OS X, here's how to allow yourself and any other important (and trusted) person or team—no matter where they are—access to files on your Mac. Do keep in mind that yes, you can access any Mac remotely as long as you have the proper permission and Internet access, but you won't be able to access it if you forget to leave that Mac powered on and connected to the Internet.

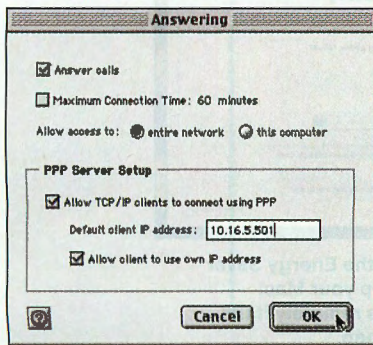
2 Invite Others If you're the only one sharing, skip ahead to step 3. If you want to share files with other people, in the File Sharing window click the Users & Groups tab to display its options. For every person to whom you want to allow access, click New User, enter a user name in the Name field, type a password in the Password field, and check the Allow User To Change Password box if you want to allow that option. Then select Sharing from the Show pop-up menu and check the Allow User To Connect To This Computer box. Select Remote Access from the Show pop-up, and check the Allow User To Dial In To This Computer box. To set up group access, back in the Users & Groups tab click New Group, type a name for the group in the Name field, and then drag any user from the File Sharing window onto the New Group window. Close the window.

Create a user for every person to whom you want to give access—you can allow those you trust to change their own password.



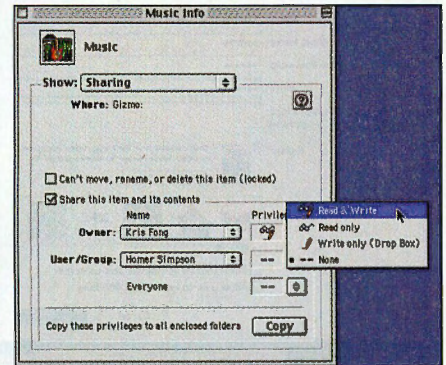
Your Mac sleeps deeply—check these boxes so you can wake it remotely on demand when you want to access files.

4 Enable Remote Access From the Apple menu, select Control Panels, then Remote Access. In the Remote Access window, enter your user name in the Name field and password in the Password field. From the RemoteAccess menu, select TCP/IP. In the resulting window, select PPP from the Connect Via pop-up menu, select Using PPP Server from the Configure pop-up, and close the window (click Save when asked). Then select Answering from the RemoteAccess menu. In the Answering dialog, check the Answer Calls box and check the Allow TCP/IP Clients To Connect Using PPP box. Enter the IP address of this machine in the Default Client IP Address field, check Allow Client To Use Own IP Address, click OK, and close the Remote Access window.



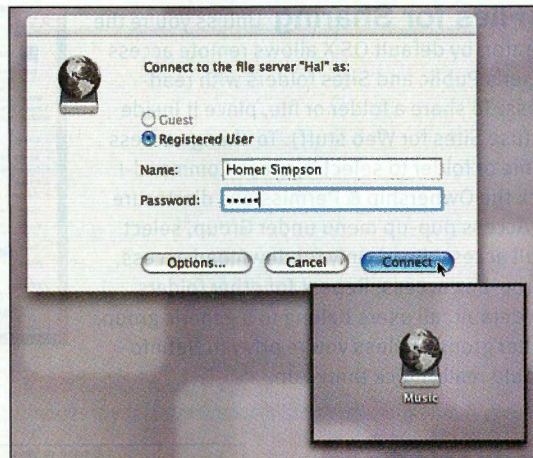
Enable your Mac to answer calls from other computers via the Remote Access options.

5 Select Files to Share You may be feeling generous, but it's not wise to share the contents of your entire hard drive with others—not even yo' momma. Instead, be selective about who has access to which folders and/or files. Select a folder and press Command-I (Get Info). Select Sharing from the Show pop-up menu, and then check the Share This Item And Its Contents box. Select one of your users or a group from the User/Group pop-up, and then select a preference from the Privilege pop-up—Read & Write for full access, Read Only for download access, or Write Only for upload access. That's it—give your trusted cronies their user names and passwords and your IP address, and remember to keep this Mac turned on and connected to the Internet if you want to provide access.



Choose how much file access you're giving your guests from the Privilege pop-up menu—believe it or not, we trust Homer.

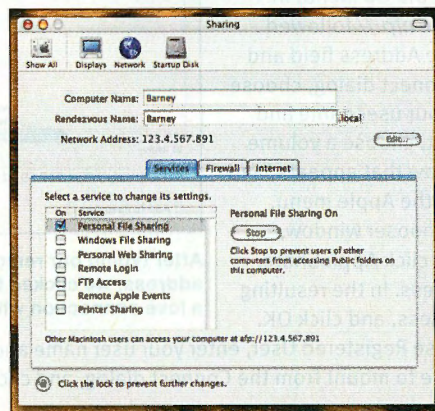
6 Grab Files Remotely You must be connected to the Internet to grab files from a Mac remotely. OS Xers: Select Connect To Server from the Go menu in the menu bar, and in the Address field of the resulting dialog, type `afp://` followed by the IP address of your remote machine (for example, `afp://192.128.123.456`). Click Connect. In the dialog that appears, choose Registered User, enter your user name and password for that machine, click Connect, and you're in—choose the volume to access from the Connect window, and its server icon appears on your desktop. OS 9ers: From the Apple menu, select Chooser, choose AppleTalk Active in the resulting window, click AppleShare, and click Server IP Address. In the dialog that comes up, type the IP address in the Enter The Server Address field and click Connect. Enter your user name and password for that machine in the resulting dialog, and click Connect. In the server window, select the desired volume(s) and click OK—the volume icon(s) appear on your desktop.



Once Homer enters the name and password we set for him, he gains access to our shared Music volume on his desktop.

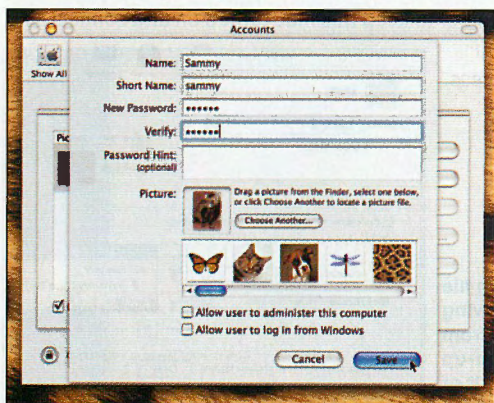
Share Files on an OS X Mac

1 Start File Sharing From the Apple menu, select System Preferences. In the resulting window, click the Sharing preference to open its options. Jaguar cats: Enter a name for your Mac in the Computer Name field (if one isn't there already), click the Services tab, and check the Personal File Sharing box to turn on sharing. Jot down the server address (`afp://your IP address`). Pre-Jaguar kitties: Click the File & Web tab, type a name in the Computer Name field (if one isn't there), and in File Sharing Off, click Start. Jot down the IP address displayed. If you have a dynamic IP address, do not disconnect your Mac from the Internet or the number will more than likely change.



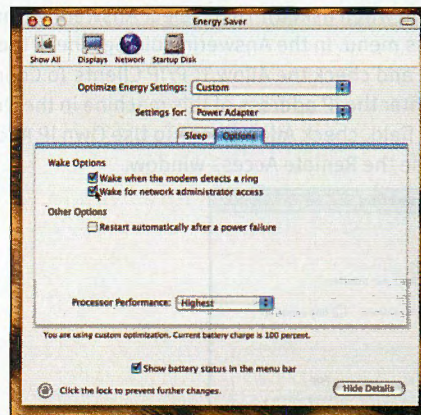
To access this machine remotely, make sure to write down the server address at the bottom of this screen.

2 Share with Others You don't need to enable Remote Login With OS X (unless you want to connect via a secure shell with the Terminal—another tutorial altogether), so for every person to whom you'd like to give remote access, create a new user. In System Preferences, click Accounts to open its panel. Click New User; in the resulting pane, enter a name and password (plus verification) in the appropriate fields. If your not-as-smart-as-you pal does Windows, check the Allow User To Log In From Windows box, then click Save to create the user. Repeat for others, and then dole out names and passwords. Note: We don't advise allowing remote users to administer your computer unless you trust them with your life (and your Mac).



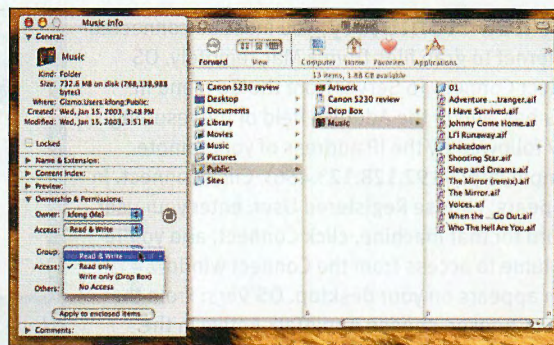
Create a new, nonadministrative user for every person to whom you want to give remote access.

3 Allow Wake-up Calls If your Mac is sleeping, no one can access its files remotely unless you set it to wake up when contacted. In System Preferences, click Energy Saver to open its options panel, and then click the Options tab. Under Wake Options, place a check in both boxes to allow remote users to rouse your Mac.



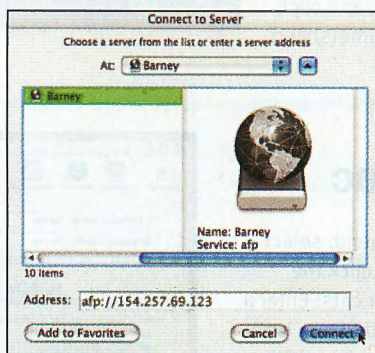
Don't forget to allow the Energy Saver preference to wake up your Mac. You can't access files remotely if the machine's in deep sleep.

4 Store Files for Sharing Unless you're the administrator, by default OS X allows remote access to your user's Public and Sites folders with read-only access. To share a folder or file, place it inside your Public folder (use Sites for Web stuff). To change access privileges, click a file or folder to select it, press Command-I (Get Info), and click the Ownership & Permissions disclosure triangle. From the Access pop-up menu under Group, select Read & Write for full access, Read Only for download access, or Write Only for drop-box access. Repeat for other folders and files. Note: By default, all users belong to a generic group. Don't attempt to alter groups unless you're privy to NetInfo Manager, or you could really muck things up.



To give users more than just read-only access to a folder or file, select Read & Write from the Group Access pop-up menu.


5 Get Connected To access files remotely from a file-sharing Mac, OS Xers should select Connect To Server from the Go menu. In the resulting dialog, type `afp://` followed by your IP address in the Address field and click Connect. In the Connect dialog, choose Registered User, type your user name and password, click Connect, choose a volume to mount from the window that appears, and click OK. OS 9ers: From the Apple menu, select Chooser. In the Chooser window, select AppleTalk Active, click AppleShare, and click Server IP Address. In the resulting dialog, enter the IP address, and click OK. In the next dialog, choose Registered User, enter your user name and password, click Connect, select a volume to mount from the Connect dialog, and click OK.

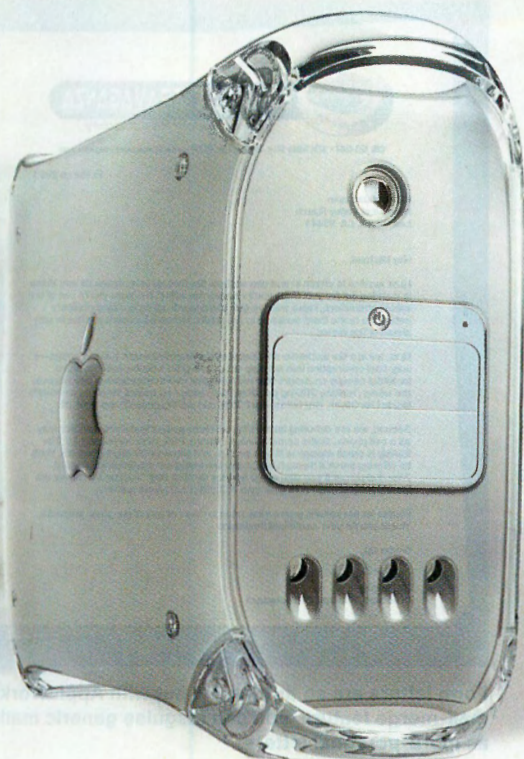


After typing our remote Mac's IP address, we clicked Connect to make a love connection with Barney.

PROBLEMS? TRY THIS

If you're a Jaguar user and get the dreaded "Error = -36" alert when you try to tap into your remote Mac via the Connect To Server command, launch your Web browser, enter the IP address in the URL field, and press Return to connect. Connect To Server supports only WebDAV-supported servers, and will display the error if you're trying to connect to a server that doesn't use WebDAV.

 Carol S. Holzberg, Ph.D., is an educational technology specialist, computer journalist, and anthropologist, and is also the technology coordinator at three schools in western Massachusetts.



Purchase new Macs for under \$1000!

*This offer includes
PowerBooks, PowerMacs,
iMacs as well as 2003
models when released.*

Macintosh Purchase Program

We negotiate large discounts with Apple resellers for selling in volume. By bringing hundreds of customers together at the same time resellers can meet their sales goals almost overnight. This allows you to get a new machine directly from Apple at a huge discount!

NEW MACS DIRECT FROM APPLE!

These are NOT refurbished! They are NOT used! These are brand new, top of the line, computers direct from Apple! Choose from all models including dual processor G4 PowerMac desktops!

YOU ARE NOT OBLIGATED!

We guarantee your satisfaction! If you are not completely satisfied with the price we negotiate you are not obligated to purchase anything.

PROGRAM REQUIREMENTS:

To qualify you must pay a one-time registration fee. You must also pay for the system in full within 30 days once you are invoiced. New computers generally arrive 3-5 business days after final payment is received.



**marbella
TECHNOLOGIES**

For More Information Call: **800-310-2256**
or visit us at: **www.applepurchaseprogram.com**

Personalize Your Form Letters

by Kris Fong and Rod Lawton

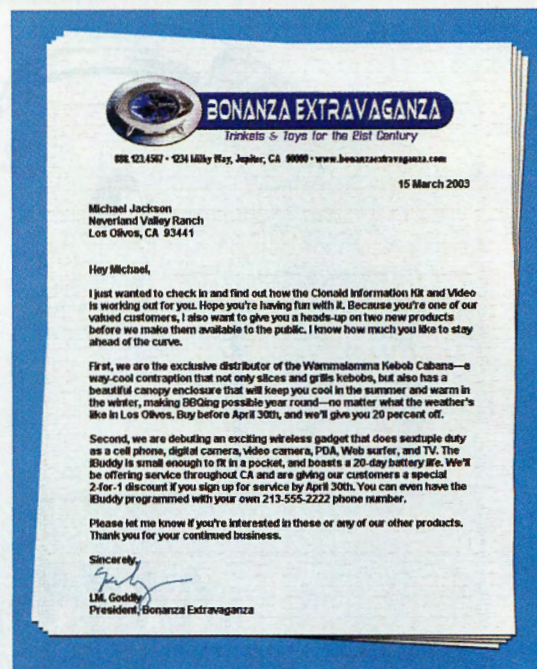


WHAT YOU NEED

- AppleWorks (\$79, free with consumer Macs, www.apple.com)

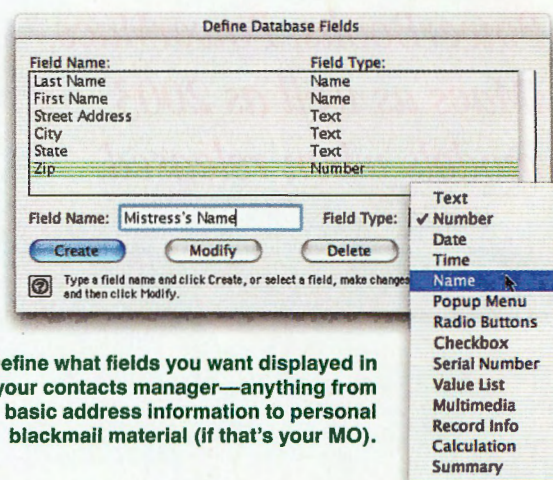
Which letter would you rather read—one that starts off “To whom it may concern” or one that opens with “Dear Homer”? When you need to send a snail-mail letter to a lengthy list of people, how you address your recipient can become the deciding factor on whether that person reads your letter or turns it into a two-point shot into the circular file. Rather than start off your message with a generic “Hello” or “Dear Sir/Madam” you can set up your word processor to give your form letter a personal touch—automatically.

Luckily for you, Apple’s AppleWorks contains a feature called *mail merge*, which lets you automatically address a letter to individual people as well as pepper it with other personal references, like the last time you and your client spoke, the product or services he or she last purchased from you, and more—even though you’re sending the same basic letter to everyone. All you need are two files: a form letter and a contact database. Here’s how to set it all up.



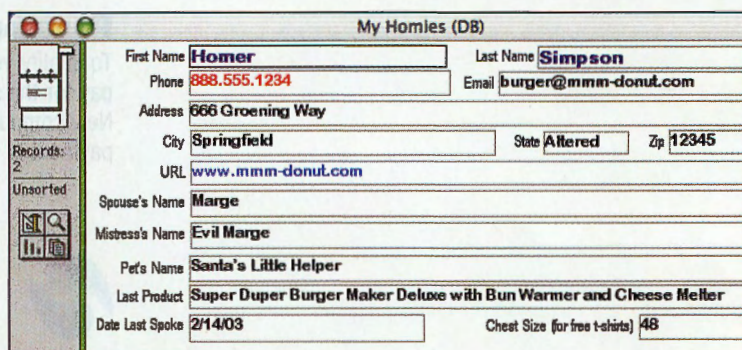
Form letters are so unfriendly, but with AppleWorks’ mail-merge feature, you can disguise generic mailings as more-personal letters.

1 Drum Up Some Contacts You’ll need to create an AppleWorks contacts database from scratch if you don’t already have one, or import tab-delimited data from another database like FileMaker Pro or Entourage. Launch AppleWorks and click Database in the Starting Points palette. In the resulting dialog, define the fields you want the database to display, such as first name, last name, phone, and so on (if you’re importing tab-delimited data, make sure to keep the field names the same as those in your older database). Type a corresponding name in the Field Name field, select the Field Type from the drop-down menu (Text, Date, Name, and so on), and click Create. For more personalization, add fields such as the date you and the client last spoke, the product last purchased, and the name of the client’s significant other. When finished, click Done to create the database.



Define what fields you want displayed in your contacts manager—anything from basic address information to personal blackmail material (if that’s your MO).

2 Finesse and Fill the Database As it stands, your database displays names and fields in the order in which you created them. If you want to alter this look, select Layout from the Layout menu and move content around, change fonts and colors, extend or shorten fields, add additional fields, or do whatever else you want. If you’re importing data, at this point skip to step 3. Otherwise select Browse from the Layout menu, and then enter your contact data or paste in information from other contact software (Apple Address Book, Microsoft Outlook Express, and the like). Press the Tab key to jump between fields, and press Command-R to start a new record. Save your database when finished.



The more fields in your contact manager, the more personal content you can merge into a form letter.

3 Make a List and Check It Twice

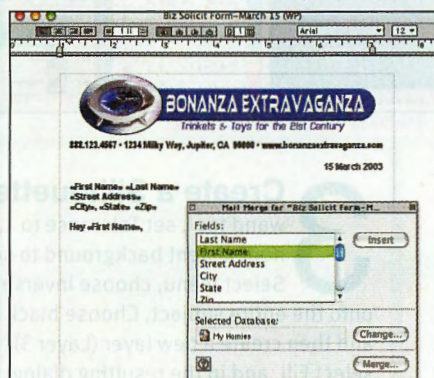
For easier eyeballing, change the view to list multiple contacts. From the Layout menu, select List, which displays each record in a single row and the fields in columns. If you're importing data, drag and drop the exported tab-delimited file into the AppleWorks database to add the contacts. If you want to change the order of the displayed fields, click a field name in the top row and drag it to another location in the row. To avoid cutting off words in a column, click and drag any separation line between columns to widen the space. To extend rows, click and drag any separation line between rows in the first (blank) column. To alphabetize contacts by last name, select Sort Records from the Organize menu, select Last Name from the Field List column, click Move, and then click OK. When finished, save your database.

First Name	Last Name	Email	Last Product	Spouse's Name	Pet's Name	Street Address	City	State
Pamela	Anderson	pam@pamelaa dersonlee.com	Fuzzy Jaguar Handcuffs	Kid	Star	89 Full Moon Way	Malibu	CA
Sigfried	Fischbacher	sigg@holdthat whiteliger.com	Super Scubby Fur So Scouty Shampoo	Floy	Plaf	3400 S. Las Vegas	Las Vegas	NV
Michael	Jackson	mikej@bubbles themonkey.com	Cloisaid Information Kit and Video		Bubbles	Rollerway Newland Valley Ranch	Los Olivos	CA
Max		max@macaddict dotcom	Super Duper B.S. Email Screener	Maxine	Mac	150 North Hill Drive	Blissbane	CA
Homer	Simpson	burger@mmm- donut.com	Super Duper Burger Maker Deluxe with Bun Warmer and Cheese Melter	Marge	Santa's Little Helper	666 Groening Way	Springfield	Altered

To get an overview of your VIPs, change the database layout to List view.

4 Say Hello

Next up is addressing your form letter. From the File menu, select New, then Word Processing to open a blank document (if you have your own AppleWorks letterhead template, open this file instead). To begin the greeting, type *Dear, Hello*, or something similar; type a space; and then select Mail Merge from the File menu. In the resulting dialog, navigate to and select your new contacts database file, and click Open. In the resulting Mail Merge palette, select First Name (or whatever you named the field with this info) from the Fields column, click Insert, and type a comma (,). The field name appears inside double angle brackets (⟨⟩) in the text. If you created a title field to designate Mr., Mrs., Miss, Ms., or Dr., insert it after *Dear*, press the space bar, and then insert Last Name (or whatever you named the field with this info) for a more formal greeting. For quicker mail handling when it ultimately comes time to stuff envelopes, insert a name and address prior to the greeting.



We prefaced our greeting with our recipient's address by using mail merge and the appropriate fields in our database.

5 Write Your Blah, Blah, Blahs

Now write your letter. For more personalization, compose your letter in a *Mad Libs*-style layout, choosing appropriate fields to insert from the Mail Merge palette. For example, you can write something like "I hope you're having fun with the ⟨Last Product⟩," referring to the Last Product field in your database. Choose fields wisely—if you mail-merge a field you've left blank in some database contacts, the merged insertion point will show nothing in these folks' letters. Make sure the cursor in your document is at the exact point where you want to insert a field, and type the appropriate space, punctuation, or carriage return to keep your letter formatted correctly. Then save the file.



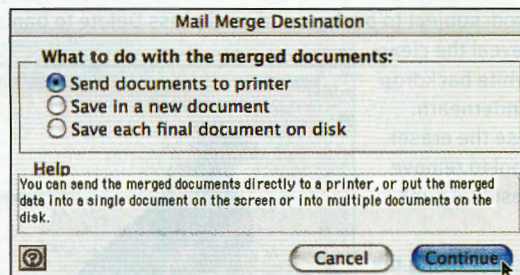
Here's our completed form letter. Personalized content will replace the corresponding fields displayed inside double angle brackets.

6 Print It Out

If you want to, say, send letters only to clients in Hawaii, press Command-F (Find) in your database, type *HI* in your State field, and press Return to display only Hawaii-residing clients. Otherwise, make sure all clients are displayed (select Show All Records from the Organize menu), and then click Merge in the word processor's Mail Merge palette. The resulting dialog gives you three output choices. Select Send Documents To Printer to print one personalized copy of your form letter for each contact. Select Save In A New Document to have the application create a single multipage word processor file, containing every letter. Or select Save Each Final Document On Disk to save each

personalized letter as a separate file. Pick your preference and click Continue. Depending on your choice, either click Print in the resulting Print dialog, or save the file or files to a desired location for later printing.

Dear ⟨Name⟩, We hope you enjoy this article but will hunt you down in ⟨City⟩ if you use mail merge for spamming purposes. Sincerely, Kris and Rod



AppleWorks lets you choose what to do with your merged mail—we chose to print our bevy of letters.

Create Photo-Realistic Shadows

by Kris Fong

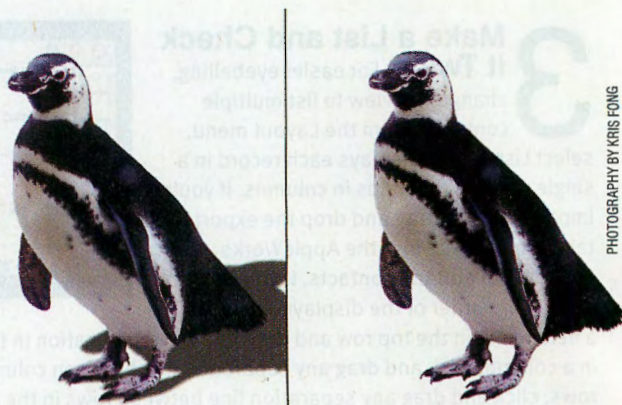


WHAT YOU NEED

- An image editor that supports layers, such as Adobe Photoshop Elements (\$99, www.adobe.com) or Photoshop (\$609)
- A digital photo of a subject



Getting great-looking shadows in your digital pics is easy—just go outside and shoot something on a sunny day. Barring an outdoor excursion, though, creating digital shadows is tricky but essential if you want to swap out a subject's background and replace it with a

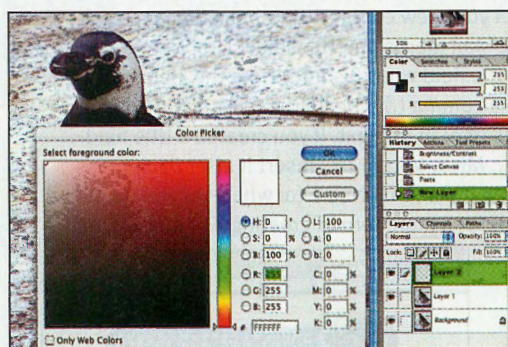


PHOTOGRAPH BY KRIS FONG

With and without: If you want to keep a subject grounded in a photo composite, create a shadow.

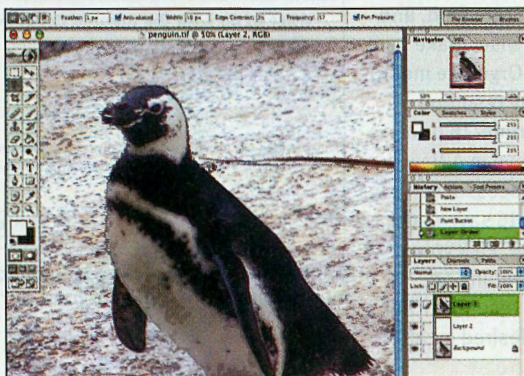
clean backdrop. Without shadows, subjects float against their backdrops instead of appearing grounded, calling more attention to your obvious image manipulation. If you want to make the trickery inconspicuous, create a shadow. Here's one way to do so in Photoshop.

1 Create a Clean Backdrop Open your photo or penguin.tif (on the Disc) in Photoshop, select all (Command-A), copy the layer (Command-C), and paste it into a new layer (Command-V) to create Layer 1. To create a seamless white backdrop, from the Layer menu select New, then Layer, and click OK in the resulting dialog to set up Layer 2. In the tool palette, click the foreground color swatch to open the Color Picker, select white from the palette, and click OK. Then select the paint bucket tool and click the canvas to fill Layer 2 with white. Drag Layer 2 between Layer 1 and the Background layer in the Layers palette.



Because our original background was distracting, we created a layer of white to serve as a replacement.

2 Bye-Bye, Background To get rid of the background, select the magnetic lasso tool. In the tool options palette, check the Anti-aliased box and enter 1 in the Feather field. If the subject's coloring is similar to that of its background, enter between 1 and 3 percent in the Edge Contrast field; use a higher percentage if they contrast more sharply. Then select Layer 1 and carefully click around the subject's edges until you've fully selected it (the lasso's selection lines will snap onto the edges). When finished, select Inverse from the Select menu to change the selection from subject to background, and press Delete to banish it; this will reveal the clean white backdrop underneath. Use the eraser tool to remove residual gunk.



Using the magnetic lasso tool is one of the easiest and quickest ways to separate subject from background.

3 Create a Silhouette Select the magic wand tool, set Tolerance to 1, and click Layer 1's nonexistent background to select it all. From the Select menu, choose Inverse to reverse the selection onto the entire subject. Choose black as the foreground color, and then create a new layer (Layer 3). From the Edit menu, select Fill, and in the resulting dialog, click OK to create a black silhouette in the form of your subject. Drag Layer 3 between Layer 1 and Layer 2 in the Layers palette.



To make a realistic shadow, create a black silhouette in the subject's form.

4 Cast the Shadow Select Layer 3 (the silhouette/shadow). From the Edit menu, select Transform, then Distort; a bounding box surrounds the shape (currently concealed by the real subject). Grab the box's top-center handle and drag it in the direction opposite your subject's light source. For example, if there's a highlight on the right side of the subject, drag the box handle left so that the light (coming from the right) appears to be casting a shadow to the left. If the light source is high, drag the handle downward to squash the form. Use the other handles to mold the shadow in reference to the light's direction. If there's no detectable light source, cast the shadow in any direction you please. Double-click inside the bounding box to apply the transformation.

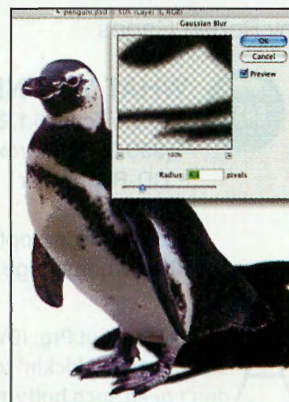
Add realism by distorting the shadow so that its ultimate shape responds directly to the subject's lighting.



5 Make It Shady To add realism, from the Filter menu select Blur, then Gaussian Blur. In the resulting dialog, check the Preview box. Move the Radius slider until the shadow edges are soft but not overdistorted so that the subject looks disconnected from the shadow. When satisfied, click OK. In the Layers palette, click the Opacity triangle and move the resulting slider down until you get a complementary gray shading. Use the move tool to make final adjustments. When satisfied, select Flatten Image from the Layers menu and save your file.

Add blur to soften the shadow's edges, and then lower the opacity to give it some translucency.

Senior Editor Kris Fong woke up this morning and saw her shadow—darn broken blinds.



CAST SOME SHADY CHARACTERS

How you cast a shadow can change the look and mood of a photo, giving you the opportunity to flex your creative muscle. Here are a few examples of alternative ways to cast shadows.



Dark Shadow Stretching the silhouette and keeping the opacity higher creates an intriguing film-noir shadow (especially if you convert the image to black and white). Using the Distort function, squash down the shadow and elongate the sides dramatically.



Role Reversal Make a photo interesting by flipping the shadow horizontally (Edit > Transform > Flip Horizontal), and then separating it from the subject so that it becomes a stand-alone item. For added appeal, manipulate the shadow so that it appears to interact with the subject.



Slim Shady To create a shadow that looks as if it's cast by the afternoon sun, flip the shadow layer vertically (Edit > Transform > Flip Vertical), and then use the Distort function to streeetch the silhouette.



Bunny Rabbit This one's a classic. Make a peace sign with one hand in front of a light source (old film projectors are a favorite), and view your work on an opposing wall or screen.

Create a Video CD

by Robert Capps

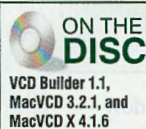
EASY

WHAT YOU NEED

- Roxio Toast 5.1.2 or later (\$99.95, www.roxio.com)
- CD-RW burner
- iMovie
- VCD Builder (optional, free, <http://homepage.mac.com/johan>)

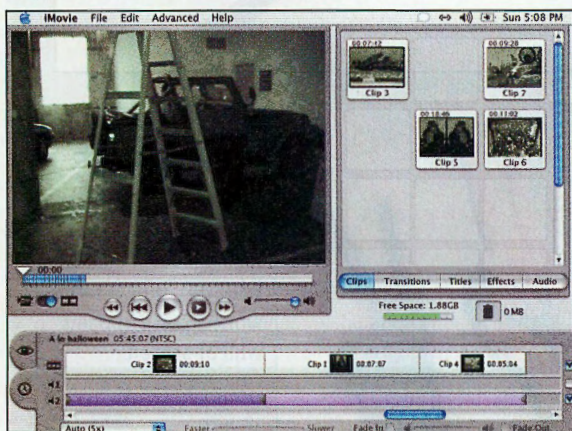
Apple's Final Cut Pro, iDVD, and SuperDrive, and Discreet's Cleaner are all kickin' tools and nice to have, but we don't need such hoity-toity wares. We're Mac addicts, after all. We're crafty. We're innovators. We're problem solvers. We're, well...at least some of us are poor. Lucky for us there's an inexpensive yet underutilized alternative to authoring and burning your own DVDs: authoring and burning your own Video CDs.

Video CDs (or VCDs) are well-known in almost every part of the world except the United States. Thanks to its worldwide popularity, most home DVD players can also play the lower-resolution VCD format. It's not a much-ballyhooed feature in America, but if you bought your DVD player in the last



VCD Builder 1.1,
MacVCD 3.2.1, and
MacVCD X 4.1.6

1 Make Your Movie Start by making a movie in iMovie. Keep in mind that CD-Rs can accommodate a little more than an hour of VCD video, so watch your final time total as you edit. If you want to make a VCD with a title screen and multiple sequences, create each sequence as a completely separate iMovie project. In other words, edit just your opening title sequence and save it as project 1. Then start a new project, edit the first sequence or chapter of your movie, and save it as project 2, and so on. Name your projects sequentially so you know which one's which. If you don't want multiple sequences, just create one project.



You don't need iMovie to make a VCD, but if you want to give your movies a polished look, nothing's easier to use.

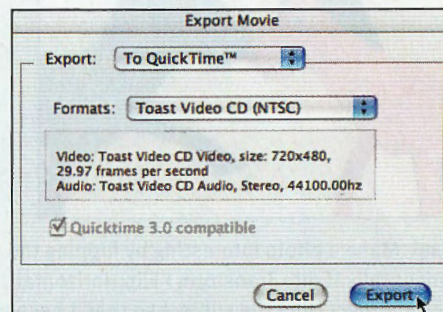


Can't afford a DVD burner? Make a VCD that can play in most home DVD players or with a VCD player app on your Mac.

couple of years, odds are it plays VCDs—heck, it probably even says so right on the front (if it doesn't, check the manual).

This means you—with just iMovie, Toast, and a normal CD burner, and without the expense of DVD authoring—can crank out movie discs playable on most home DVD players. While you can't add all the interactivity DVDs offer (VCDs can include such features, but currently no great Mac software exists to let you tap their full potential), you can at least make multiple-sequence VCDs with a simple freeware program called VCD Builder, which enables you to skip around your disc with the controls on your DVD player. The best part is that building VCDs is easy. Just follow along.

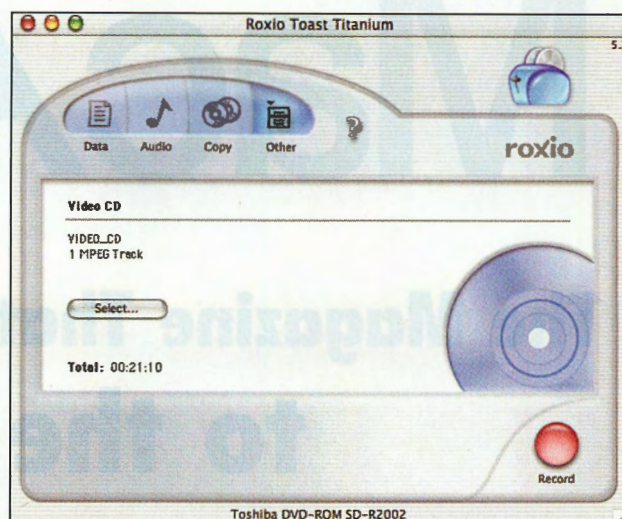
2 Pop It into Toast Toast Titanium 5.1.2 and later automatically installs an export plug-in into iMovie for making VCDs. If all you want is a VCD movie (without any fancy-shmancy sequence tracks), simply select Export Movie from iMovie's File menu (multisequence moviemakers, skip ahead to step 3). In the resulting dialog, select To QuickTime from the Export pop-up menu, and choose Toast Video CD (NTSC) from the Formats pop-up menu. Click Export, and in the resulting dialog, name your movie, choose where you want to save the file, and click Save; iMovie will compress your movie, and then launch Toast to burn the disc. Finally, just click Record to create the VCD.



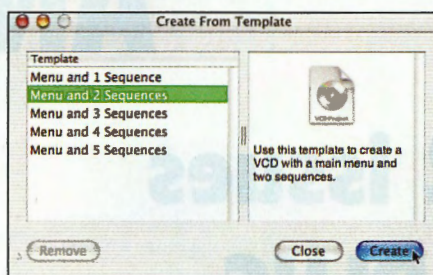
This is so easy, it hurts. Toast includes an iMovie export plug-in to make VCDs; just click Export to start the process.

3 Send the Sequences to Toast If you want to make a multisequence VCD with a title screen, open the first of your iMovie projects and select **Export Movie** from the **File** menu. In the resulting dialog, select **To QuickTime** from the **Formats** pop-up menu, select **Toast Video CD (NTSC)** from the **Formats** pop-up, and click **Export**. In the resulting dialog, give the movie a name followed by a number (1, in this case) to keep the sequence intact, choose a location, and click **Save**; iMovie will compress the movie and then launch Toast. Don't burn the VCD yet; instead, launch your second project and repeat this step, saving the exported file in the same location as the first. Repeat with your remaining projects.

Wait—don't touch that red button yet! If you want to create a multisequence VCD, export all your movies first before burning the disc.

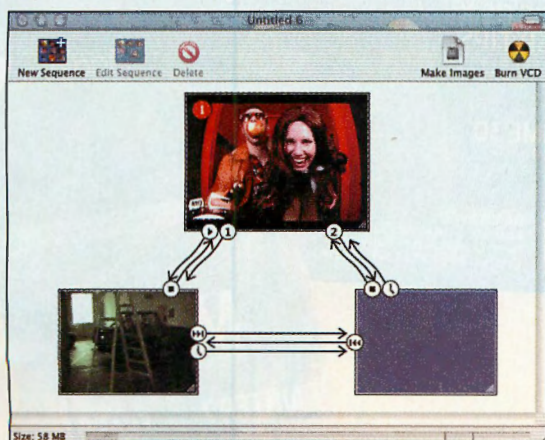


4 Build the Framework To enable viewers to navigate through your sequences, use VCD Builder to put the framework together (you need OS X to run the software). This app allows you to create an opening title or menu screen that tethers together all of your movie sequences, allowing viewers to use their DVD player remotes to skip through sequences or call up any sequence or chapter numerically. Fire up the application. In the opening dialog, select the template that matches the number of sequences you have, and click **Create**.



Depending on which of VCD Builder's prefab templates you pick, the framework of your VCD can be simple or complex.

5 Sequence Your Sections The blank template window opens, featuring a series of screens to add your movie sequences or graphics. The menu screen is labeled "1" at the top of the window; drag and drop any title-type graphic file onto it to add (VCD Builder supports most common image formats). Then drag and drop your QuickTime movie sections, matching the sequences to the appropriate boxes in the window. When everything is in place, save your project. Click the **Burn VCD** button on the main interface; the app scans and converts the media, creates the requisite VCD disk images, and then launches Toast.




VCD Builder lets you piece together a title screen (top box) and multiple movie sections into one VCD opus.

6 Track and Burn In the Toast window, click and hold the **Other** button and select **Multitrack CD-ROM XA** from the drop-down menu. Your disk image files should already be loaded in Toast's window—if they're not, drag and drop the VCD Builder disk-image files you created into the Toast window. Then select **Record**, and presto—your multitrack VCD should be ready in a few minutes (depending on your CD-RW's write speed). Be aware that some DVD players may be finicky about playing multisequence VCDs, but in our tests the VCDs played fine on a range of models. VCDs are also cross-platform; apps such as Mireth's MacVCD (\$19.99, www.mireth.com) and Windows Media Player (free, www.microsoft.com) can play VCD-formatted movies, so you can distribute yours to all the neighborhood Mac users and PC punks.



Yes, we know you want to use Toast's Video CD option—but trust us, use Multitrack CD-ROM XA if you want a multitrack VCD.

 **Robert Capps** is sure all the VCDs he bought in Asia are fully authorized, legal products. Just like the "Rolexx" he bought in Nepal.

MacAddict

**The Magazine That Takes Your Mac
to the LIMIT...
AND BEYOND!**

**12 issues
PLUS
12 CD-ROMs**

**for only
\$24**

**A savings of 75% off
the newsstand rate!**

**Call toll-free
1-888-771-6222**

to start your subscription to MacAddict



Offer good in U.S. only. Cover price is \$7.99. Canada: U.S. \$35, includes GST. Foreign: U.S. \$46.
Prepaid in U.S. funds only. Please allow 6-8 weeks for delivery of first issue.

EM43FXX1Y

Advertiser Index

Advertiser	Contact	Page
Academic Superstore LLC	(800) 294-4035	92
AppleWorks User Group	(888) 781-AWUG	92
Aspyr Media	(512) 708-8100	4, 57
Audible.com	www.audible.com/macaddict	43
Coast to Coast Memory	(800) 4-Memory	90
CompuExpert	(888) 948-9661	91
Crucial Technology	(800) 932-4995	C4
Destineer Studios	www.destineerstudios.com	9, 44
Dr. Bott, LLC	(877) 611-2688	86
DriveSavers	(800) 440-1904	93
Econ Technologies	www.econtechnologies.com	90
El Gato Software	www.elgato.com	89
Fatcow Web Hosting	(800) 925-2184	90
Granite Digital	(510) 471-6442	91
Griffin Technology	(615) 255-0990	63
InnoTech	(877) 858-7722	92
Liiva, Inc.	www.superscrubber.com	47
Krazy Klassy iKovers	(888) 223-7264	88
Leister Productions	(717) 697-1378	90
Mind Electronics, Inc.	(800) 897-8994	93
M-Audio	www.m-audio.com	59
Mac Solutions	(800) 873-3RAM	77
Mac-Pro Systems	(800) 525-3888	90
MACE Group/Macally Peripherals	(800) 644-1132	88
MacMall	(800) 965-3282	84-85
MacofAllTrades	(800) 304-4639	90
MacWarehouse	(800) 981-9192	2-3
MacZone	(800) 304-0286	78-79
Marathon Computer, Inc.	800-832-6326	93
Marbella Technology	(800) 310-2256	69
MarWare, Inc.	(954) 927-6031	92
MegaMacs	(918) 664-MEGA	93
MicroMat Computer Services	(800) 829-6227	C3
Netalog	(919) 382-3227	93
Other World Computing	(800) 275-4576	80-83
Power Max	800-613-2072	87
PowerOn Computer Services	(800) 673-6227	"89, 92"
RAMJET, Inc.	1-800-831-4569	88
REAL Software	(512) 263-1233	11
Santa Cruz Digital Styles	(800) 228-6091	88
Sony	www.sony.com/roughcut	7
Sony Online	www.everquest.com	C2-pg 1

Best
Prices On

Memory

for all
Apple® CPUs

Lifetime Warranty RAM

Computer Model or Socket Type	RAM Type/Description	Prices listed by module MB size:				
		32	64	128	256	512 1gb Kit
G4 Dual 1GHz/1.42GHz	DDR PC 2700	-	-	-	'37	'65 '128
Xserve/G4 Dual 867	DDR PC 2100	-	-	-	'32	'59 '115
PowerBook® G4 12"	DDR PC 2100 SODIMM	-	-	-	'46	'99 -
PowerBook® G4 17"	DDR PC 2700 SODIMM	-	-	-	'49	'119 '235
G4 iMac®	PC-133 168 pin CL3	-	-	'19	'29	'59 '113
G4 AGP 466-Dual 1GHz	PC-133 168 pin CL3	-	-	'19	'29	'59 '113
PowerBook® G4	PC-100 144 pin CL2	-	-	-	'29	'79 '155
G3/G4/iMac® 350-600	PC-133 168 pin CL3	-	-	'19	'29	'59 '115
PowerBook® G3	PC-100 144 pin CL2	-	'19	'22	'39	'69 '129
iBook®/iMac® 233-333	PC-100 144 pin CL2	-	'19	'22	'49	'109 ^{MT} -
168 pin DIMMs		'13	'17	'27	-	- -
72 pin SIMMs		'9	'19	-	-	- -

Note: The memory market is extremely volatile, check our website for the most up-to-date pricing.

Plus,
**Insanely
Great
Deals!**

Software & Specials!

ThinkFree Office	\$ 37
Mac® OS 8.6 w/Free 8.5 CD	79
Apple Pro Speakers (used) pair	35
Microsoft Word/Entourage 2001	WOW! 99
Kensington Flylight USB	15
DVD-R Blank Media 10-pak	SO LOW! 15
Macally PCI Card Dual USB 2.0	24
Griffin PowerMate	37
Griffin iMate USB/ADB Adapter	33
Griffin iMic USB Audio Adapter	30
Dr. Bott ADC/VGA Extractor	25
G4Port Internal Serial Port	37
LaCie d2 DVD-R/CD-RW FireWire/USB2.0	389
LaCie 120GB 7200rpm FireWire d2	249
LaCie USB pocket Floppy Drive	49
LaCie CD-RW 52x24x52 FireWire d2	169
LaCie Pocket CD-RW 24x10x24 USB/FW	257
LaCie Electron 19 Blue Natural Flat	FREE Shipping! 389
LaCie Electron 22 Blue Natural Flat	939
Contour Designs Shuttle Pro	89
Color Keycaps for Final Cut Pro	69
Pioneer DVR-104 DVD-RW Internal	209
Blue-Gene USB Bluetooth Adapter BT30	39

Hard Drive Fire Sale!

Size	RPM	Type	Internal/External	Price
60gb	7200	FireWire® Oxf 911	E	\$149
80gb	7200	FireWire® Oxf 911	E	169
120gb	7200	FireWire® Oxf 911	E	219
20gb	5400	IBM 9.5mm/Laptop	I	99
30gb	4200	IBM 9.5mm/Laptop	I	135
40gb	5400	Toshiba 9.5mm/Laptop	I	159
60gb	5400	Toshiba 9.5mm/Laptop	I	199
External 3.5 FireWire case w/ Oxf 911				55

Macs, Macs, Macs and More! New & Discontinued Models



Power Mac® G4
All new Dual Processor configurations
PLUS... Free 256mb RAM & Free Shipping!

12.1" iBook Deals

600MHz \$799
128mb/20gb CD-ROM MS600LLA

700MHz \$999
128mb/20gb Combo MS602LLA



Powerbook G4 12"
867 MHz
256mb/30gb SuperDrive
\$1,999

LaCie 400gb FireWire
External 7200 rpm d2 \$179

Insanely Great! PLUS... Free 256mb RAM w/\$29 install fee

Word/Entourage 2001
Only \$99 - Insanely Great Deal!

Trade In Your G4 Now! Call For A Quote 1-800-80-WE BUY

*Check website for details on new computer purchases. Not responsible for typographic errors. Limited to stock on hand. Not valid in combination with any other promotions.

www.macsolutions.com



**MAC
Solutions**

MacSolutions, Inc.
11933 Wilshire Boulevard
West Los Angeles, CA 90025
Phone: (310) 914-3200
Fax: (310) 966-4433
University & School P.O.'s Welcome

Note: Prices subject to change without notice. Ad code 131

Authorized Reseller Apple Specialist

Check our
website
-macsolutions.com-
for the freshest
deals!

800-873-3726

www.macsolutions.com

macZONE®

New Up to 1.42GHz Just Announced! NEW



Call us or visit
www.maczone.com
for all the latest
PowerBook offers.

NEW Apple PowerBooks

Less is More, AND More is More

NEW! 12" Apple PowerBook G4

- Smallest, most affordable full-featured notebook
- High-resolution, 1024 x 768 TFT
- Lightweight durable aluminum alloy enclosure
- Slot-loading DVD/CD-RW drive
- 32MB nVIDIA GeForce4 420 Go graphics card
- Bluetooth built in, AirPort Extreme ready
- VGA, S-Video and composite video output
- Weighs only 4.6 pounds

NEW! 17" Apple PowerBook G4

- The first notebook ever with a 17" TFT; 1440 x 900
- Backlit keyboard with ambient light sensors
- Lightweight durable aluminum alloy enclosure
- Slot-loading SuperDrive
- 64MB nVIDIA GeForce4 440 Go graphics card
- Bluetooth and 54 Mbps AirPort Extreme built in
- NEW 800 Mbps FireWire and connections galore
- Weighs only 6.8 pounds

867MHz G4

- 12" TFT Display
- 256MB DDR Memory
- 40GB Hard Drive
- Combo DVD-ROM/CD-RW
- NVIDIA GeForce4 420 with 32MB DDR SDRAM

\$1794⁹⁸

#169635

867MHz G4

- 15.2" TFT
- 256MB Memory
- 40GB Hard Drive
- Combo DVD/CD-RW
- AirPort Card Ready
- ATI Mobility Radeon 9000 with 32MB DDR SDRAM

\$2294⁹⁸

#159229

1GHz G4

- 15.2" TFT Display
- 512MB Memory
- 60GB Hard Drive
- SuperDrive DVD-R/CD-RW
- AirPort Card Included
- ATI Mobility Radeon 9000 with 64MB DDR SDRAM

\$2794⁹⁸

#159230

1GHz G4

- 17" TFT Display
- 512MB DDR Memory
- 60GB Hard Drive
- SuperDrive DVD-R/CD-RW
- AirPort Extreme Included
- NVIDIA GeForce4 440 with 64MB DDR SDRAM

\$3294⁹⁸

#169634

Apple Instant Loan starting at only **\$39** per month

#168154 AppleCare 3-Year Protection Plan - PowerBook G4... \$349.99



Apple iBook G3

*Faster
and more
affordable
than ever!*

HURRY-
Price Drops up
to \$300 on iBooks!
While supplies last!
Call for details

FREE
Up To 384MB
Memory

After rebate. See bottom of page
for details.

700MHz G3

- 12.1" TFT Display
- 128MB Memory
- 20GB Hard Drive
- CD-ROM Drive
- ATI Mobility Radeon 7500 with 16MB VRAM

\$994⁹⁸

#159224

800MHz G3

- 12.1" TFT Display
- 128MB Memory
- 30GB Hard Drive
- Combo DVD/CD-RW Drive
- ATI Mobility Radeon 7500 with 32MB VRAM

\$1294⁹⁸

#159225

800MHz G3

- 14.1" TFT Display
- 256MB Memory
- 30GB Hard Drive
- Combo DVD/CD-RW Drive
- ATI Mobility Radeon 7500 with 32MB VRAM

\$1494⁹⁸

#159226

Apple Instant Loan starting at only **\$22** per month

#168153 AppleCare 3-Year Protection Plan - iBook G3... \$249.99

Mac Zone is Your Single Source for the Latest Hardware & Software Products!

FREE Mac OS X v10.2* Account Edge 3



\$219⁹⁹
#161324

*Via mfr. mail-in claim form.
\$117.97 value. Offer good 1/7/03
through 3/31/03.

Save Up to \$400 on HP Printers!
Call or go to maczone.com for details.

Ideal for digital photography
hp Deskjet 5550
Color Printer
\$124^{98*}
#980152

*After \$25 mfr. mail-in rebate. Low Mac Zone
price: \$149.98. Offer good through 4/30/03.

Super capacity and speed

NEW!
LaCie 120GB
FireWire Hard Drive



#1013991 LaCie 200GB d2... \$399.99

#154800 **\$259⁹⁹**

FREE!
128MB Card
Nikon Coolpix
5700 SLR 5MP
Digital Camera
\$1199⁹⁹
#168120

#152368 Nikon 5000 5.24MP Digital Camera
with FREE Extra 128MB Card and
Sunpak 58" Tripod... \$899.98

*While supplies last.



The Latest iApps!
iMovie 3, iPhoto 2,
iDVD 3, iTunes 3
iLife Suite

\$48⁹⁹
#169641

FREE 5-Pack CD/RW!

QuickBooks
Pro 5.0 for Mac
\$129^{99*}
#159490

*After \$120 mfr. mail-in
upgrade rebate. Offer good
through 12/31/03.

Make sure you get all of
your deductions
**TurboTax® Deluxe
2002 for Mac**



Free Memorex
CD/RW 5-Pack

\$49⁹⁵
#159473

SAVE \$30! Buy TurboTax Deluxe and Quicken
2003 together for just **\$79.94!**



Easy financial
management
Quicken 2003
Deluxe for Mac
\$59⁹⁹
#158947

Don't forget
your AppleCare

AppleCare
Protection Plan

Starting at **\$169⁹⁹**
Call for details.

FREE Memory Offer: Up to 512MB FREE memory with select Apple computers and professional \$40 installation purchase. Some memory offers require mail-in rebates. Allow up to one day for installation. Offer subject to change due to memory price volatility. Call for latest offers. Offer good while supplies last. Not valid with any other Mac Zone offers.

†After \$30 mfr. mail-in rebate.
Low Mac Zone price: \$109.94.
Offer good through 4/15/03.



Credit cards are not charged until the order is shipped. Most products ship the same day (barring system failure, etc.). Shipping options include Ground, 2nd Day and Overnight delivery. Freight is based on average product weight. Handling extra. Insurance available. Special orders may require special shipping and handling charges. Call for international shipping rates. Prices and product availability subject to change without notice. Specials and promotions may be limited to stock on hand. Not responsible for typographical errors. All products sold by Zones, Inc. are third party products and are subject to the warranties & representations of the applicable manufacturers. ©2003 Zones, Inc. All rights reserved. Unauthorized duplication is a violation of applicable laws. Apple, the Apple logo, Mac, Power Mac, PowerBook, iMac, iBook, AirPort, and FireWire are trademarks of Apple Computer, Inc., registered in the U.S. and other countries. SuperDrive, iPod and eMac are trademarks of Apple Computer, Inc. AppleCare is a registered service mark of Apple Computer, Inc. PowerPC is a trademark of International Business Machines Corporation, used under license theretofrom.

Power Mac G4s iMacs – up to 1GHz



Mac Zone Exclusives!

Harman Kardon
iSub Subwoofer
\$49.99*

#173489

*Refurbished. While supplies last.

FREE
EPSON® Stylus
C42UX Printer
With select Apple
computer purchase
after rebates.



*See bottom of page for details.

Microsoft® Office v. X
Full Version with any Apple
CPU purchase.

ONLY

\$199*

*See bottom of page for details.

SAVE \$99*

When you purchase an
hp DeskJet
3820 or
5550 with
Apple CPU.



*See bottom of page for details.

Apple Power Mac G4s

Just Announced!
New Apple Power Macs
Up to 1.42GHz!

**NEW –
Now
Shipping!**

FREE
Up to 512MB
Memory
After rebate.
See bottom of page
for details.

**HURRY –
Price Drops up
to \$800 on Power Macs!
While supplies last!
Call for details**

1GHz G4	1.25GHz Dual G4	1.42GHz Dual G4
<ul style="list-style-type: none"> L3 Cache – 1MB DDR SRAM 256MB DDR SDRAM 60GB Hard Drive Combo DVD-ROM/CD-RW NVIDIA GeForce4 MX with 64MB of DDR SDRAM 	<ul style="list-style-type: none"> L3 Cache – 1MB DDR SRAM 256MB Dual DDR SDRAM 80GB Hard Drive Combo DVD-ROM/CD-RW ATI Radeon 9000 Pro with 64MB of DDR SDRAM 	<ul style="list-style-type: none"> L3 Cache – 2MB DDR SRAM 512MB DDR SDRAM 120GB Hard Drive SuperDrive DVD-R/CD-RW ATI Radeon 9000 Pro with 64MB of DDR SDRAM
\$1494⁹⁸	\$1994⁹⁸	\$2694⁹⁸
#165458	#165459	#165460

New Apple Displays!



NEW FROM APPLE!

#165462	Apple 17" Studio Flat Panel	\$699.98
#165461	Apple 20" Cinema Display	\$1299.98

UP TO \$1500 PRICE DROPS!

	WAS	NOW	Price Drop
#139208	Apple 17" Studio Flat Panel	\$999.98	\$699.98
#147870	Apple 23" Cinema Display HD	\$3494.98	\$1999.98
			\$1500.00

Apple Instant
Loan starting at only **\$37** per
month

#168151 AppleCare 3-Year Protection
Plan – Power Mac G4 \$249.99

Apple iMac G4
Just Announced!
New iMacs
Up to 1GHz!

**Price Drops up
to \$300 on iMacs and
up to \$200 on eMacs!
While supplies last!
Call for details.**

FREE
Up To 512MB
Memory
After rebate. See bottom of page
for details.

Apple Instant
Loan starting at only **\$33** per
month

#168152 AppleCare 3-Year Protection
Plan – iMac G4 \$169.99

800MHz G4

- 15" TFT Display
- 256MB Memory
- 60GB UATA/66 Hard Drive
- 32X Combo DVD/CD-RW drive
- 2 FireWire / 5 USB
- 32MB NVIDIA GeForce2 MX

\$1294⁹⁸

#165464

1GHz G4

- 17" Widescreen LCD
- 256MB Memory
- 80GB UATA/100 Hard Drive
- 4X SuperDrive DVD-R/CD-RW
- 2 FireWire / 5 USB
- 64MB NVIDIA GeForce4 MX

\$1794⁹⁸

#165465

Thousands of Mac Products Available! Call or Visit us at maczone.com!

**NEW! 54 Mbps Wireless
Performance
- 5 times faster
Apple AirPort
Extreme
Base
Station**

NEW!

\$198⁹⁹

#169636

#169637	Apple AirPort Extreme Base Station w/Modem . . .	\$248.99
#169638	Apple AirPort Extreme Card	\$98.99
#169639	Apple AirPort Card Kit w/Software	\$78.99

**The MP3 player that
doubles as a hard drive
Apple iPod – 5GB**

\$294⁹⁸

#159202

#159203	iPod 10GB with Carrying Case . . .	\$394.98
#159204	iPod 20GB with Carrying Case . . .	\$494.98

**FREE 5-Pack of CD-R
Roxio Toast
with Jam**



\$159⁹⁷

#141946



**Less than
30¢ per disc
Fuji 24X
700MB CD-R
100-Pack**

\$27⁹⁹

#141962

**When your
presentation
really counts
Keynote
Presentation
Application**

\$98⁹⁹

#169642



**Edit video
like a pro!
Final Cut
Express**

\$298⁹⁹

#169640



\$10 PRICE DROP!

**Apple
DVD-R
5-Pack**

\$14⁹⁹

#804632

Microsoft Office v. X Offer: Get Microsoft Office v. X for only \$199 with select Apple CPU purchase after Mac Zone mail-in rebate. Items must appear on same invoice. Regular low Mac Zone price: \$437.99. Offer good through 4/7/03.

FREE EPSON Printer Offer: FREE EPSON Stylus C42UX Printer with Apple CPU purchase after \$50 Epson mail-in rebate and \$30 Mac Zone mail-in rebate. Low Mac Zone price: \$79.99. Offer good through 3/31/03.

HP Printer Offer: Buy an Apple CPU and either an hp DJ3820 or hp DJ5550 and receive \$99 back via mfr. mail-in rebate. All qualifying purchases must be at the same time on the same invoice. Offer can not be combined with other HP mail-in rebate offers. Offer good through 2/1/03 through 3/29/03.

Order
by Phone

1-800-304-0286

Corporate bids welcome!

A NASDAQ® COMPANY Ticker Symbol: ZONS

Mention this source code
when you order and save!

Source Code
MA043

www.maczone.com



Other World Computing

Serving the Mac Universe since 1988

800.275.4576

Excellent Service

Competitive Prices

Quality Products

Expert Tech Staff

Other World Computing has the Memory, HD, or Accelerator for your Mac! Not sure what you need? Call our Mac Experts for free assistance, or use our Online Guide at <http://eshop.macsales.com/myowc>

Legacy Mac memory

Memory for your Legacy Mac and Mac clone!



PowerMac 5V 168pin DIMMs

You can now add up to a GIGABYTE of Memory to your PowerMac 73/75/76/85/86/95/9600; PowerComputing PowerWave, PowerCenter, PowerTower, SuperMac J700/S900! Our FREE XpostFacto lets you utilize OS X. Don't let low system memory slow you down!



	FPM Non-EDO	EDO
64MB	\$24.95	\$24.99
128MB	\$28.95	\$28.99

Call us or visit www.Macsales.com for just about any legacy Mac memory upgrade! For a Mac II to LCI to a Quadra 900 to a PowerMac 8100, from a PowerBook 500 to a 1400 to a 3400 - OWC is your Mac Memory Expert!

3.5" SCSI drives



500MB 3.5" Low Profile 50pin \$9.95
Major Manufacturer, 90 day OWC warranty

9.1GB IBM UltraStar 36ES 7200rpm \$49.99
6.5ms, 2048K Buffer, 1" LP, new w/1yr OWC warranty

18.4GB IBM UltraStar 73LZX 10,000rpm \$79.99
4.9ms, 4096K Buffer, 1" LP, new w/1yr OWC warranty

36.7GB IBM UltraStar 36LZX 10,000rpm \$139.95
4.9ms, 4096K Buffer, 1" LP, new w/1yr OWC warranty

36.7GB Seagate Barracuda 36ES2 7200rpm \$229.99
8.5ms, 2048K Buffer, 1" LP, new w/3yr Seagate warranty

73.4GB IBM UltraStar 73LZX 10,000rpm \$239.99
4.9ms, 4096K Buffer, 1" LP, new w/1yr OWC warranty

ATA/IDE PCI cards

Use ATA / IDE (3.5") hard drives in ANY PowerMac with a PCI slot!



ACARD TECHNOLOGIES

Controls up to 4 IDE/ATA/ATAPI drives!

Acard AHARD Mac ATA/66 controller \$54.99
Acard AHARD Mac ATA/133 controller \$83.99

• SIIG ATA/133 Mac PCI controller \$79.97

• Sonnet Tempo Trio Combo ATA/133 + FW+ USB 2.0/1.1 \$179.95

If your PowerMac or PowerMac Clone has a PCI slot, any of these cards will let your Mac have up to 4 ATA/IDE devices connected! Fast, Cheap, compatible with OS 8.x-9.2.x and OS X!

Memory for Apple G3/G4 PowerMacs, PowerBooks, iBooks, iMacs & Cubes!

PC100 / PC133 168pin SDRAM DIMM



For all Models
PowerMac G3,
PowerMac G4
350MHz-1GHz(except
'Mirrored Bay' DDR
Model), iMac G3/350-
700MHz, All eMac G4
and Cube G4 Models.

LIFETIME WARRANTY

PC100 CL2

128MB\$25.99
256MB\$37.99**
512MB\$74.99**

PC133 CL3

128MB\$22.99
256MB\$29.95*
256MB\$37.95**
512MB\$74.95**

Apple includes only standard PC133 CL3 memory, but you can get extra performance by upgrading to High-Performance PC133 CL2

256MB PC133 CL2 2-2-2 HiPerformance\$43.99**
512MB PC133 CL2 2-2-2 HiPerformance\$79.99**

* For all PowerMac G3s; PowerMac G4/350MHz & 400MHz 'Yikes' PCI only. ** Not compatible with PowerMac G3; PowerMac G4/350 & 400MHz 'Yikes' PCI.

Also compatible with Intel / AMD based 'Wintel' machines.

PC100 CL2 SO-DIMMs



Apple iMac 233/266/333MHz models (all Rev A-D), PowerBook G3 Wallstreet (1998), PowerBook G3 Lombard (1999).

LIFETIME WARRANTY

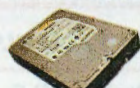
256MB\$59.95

128MB\$27.95

256MB Low Profile \$65.99*

* Now you can have up to 512MB in your iMac or above PowerBook model

3.5" ATA/IDE drives



Call or visit
www.macsales.com for new drive up to 320GBs!

30GB Maxtor Fireball-3 7200rpm \$69.97
7200rpm, <10ms seek, 2048K cache, ATA/100, 1yr Maxtor warranty

40GB IBM Deskstar 120GXP 7200rpm \$87.95
7200RPM, 8.5ms seek, 2048K cache, ATA/100, 1yr IBM & 3yr OWC warranty

80GB Seagate Barracuda IV 7200rpm \$119.99
7200RPM, 8.9ms seek, 2048K cache, ATA/100, 1yr Seagate warranty

120GB IBM Deskstar 180GXP 7200rpm \$159.99
7200rpm, 8.5ms seek, 2048K cache, ATA/6, 1yr IBM, 3yr OWC warranty

180GB Western Digital 7200rpm JUMBO \$269.95
JUMBO high-performance 8MB cache, 3yr Western Digital Warranty

200GB Western Digital 7200rpm JUMBO \$299.95
JUMBO high-performance 8MB cache, 3yr Western Digital Warranty

Note: Above ATA Drives are fully compatible with all versions of vanilla ATA/IDE, ATA/33, ATA/66, ATA/100, ATA/133, EIDE, UDMA, Etc. Drives may be used with any Mac that has built in IDE/ATA or an added ATA/IDE controller (such as SIIG, Acard, VST, or Sonnet).

Use ATA Drives in ANY PCI PowerMac! Don't have IDE/ATA built in or want a faster ATA/133 interface? OWC has the answers!



OS X ON LEGACY MACS!
FREE Installer
Software from OWC



eshop.macsales.com/osxcenter

Have the Power of X on your Pre-Beige G3 PowerMac!

184pin DDR for G4 'Mirrored Bay' & XServe

PC2100 DDR CAS 2.5

For XServe G4/1GHz Models; PowerMac G4/867MHz Dual(2002) & G4/1GHz(2003)

256MB\$49.95
512MB\$79.95

PC2700 DDR CAS 2.5

PowerMac G4 Dual 1GHz-1.25GHz-1.42GHz yr2002 & 2003 'Mirrored Bay' Models; New Feb '03 Xserve 1.3GHz Models; also may be used in models requiring only PC2100 DDR.

256MB\$54.95 512MB\$99.95

NOTE: PC2700 is backwards compatible with PC2100 and may also be used in models that require only PC2100

200pin DDR PowerBook G4 12"/17"/iMac G4 1GHz



PC2100/266MHz

256MB\$49.99
512MB\$149.99

PC2700/333MHz

256MB\$54.99
512MB\$179.99

NOTE: PC2100 is for PwrBk G4 12" & iMac G4/1GHz ONLY. PC2700 required for PwrBk G4 17"; may be used in G4 12", iMac G4/1GHz.

PC133 CL3 SO-DIMMs

For all Apple iBook models; iMac G4/700-800MHz; PowerBook G3 FireWire(yr 2000, aka Pismo), All PowerBook G4 15" Models



256MB\$39.99

512MB\$84.99

512MB\$119.99

LIFETIME WARRANTY

For iMac G4,
PB G3 FireWire ONLY

Above memory operates PC100 CL2 in models utilizing PC100 memory.

2.5" ATA/IDE notebook drives



Put up to 80GBs inside your PowerBook or iBook!

20.0GB Fujitsu MHR2020AT\$99.97
4200RPM, 2048K Buffer, 9.5mm, Slim, 3yr warranty

20.0GB IBM Travelstar 40GNX 5400rpm\$109.99
5400RPM, large 8MB Buffer, 9.5mm, Super-Slim, 3yr IBM warranty

40.0GB IBM TravelStar 40GN\$139.95
4200RPM, 2048K Buffer, 9.5mm, Slim, 3yr warranty

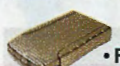
40.0GB IBM Travelstar 40GNX 5400rpm\$159.99
5400RPM, large 8MB Buffer, 9.5mm, Super-Slim, 3yr IBM warranty

60.0GB Toshiba MK6021GAS\$199.95
4200RPM, 2048K Buffer, 9.5mm, Super-Slim, 3yr Toshiba warranty

60.0GB Toshiba MK6019GAX 5400rpm\$259.99
5400RPM, 16MB Buffer, 9.5mm, 3yr warranty

80.0GB IBM Travelstar 4200rpm NEW\$CALL

Mercury Express 2.5" Portable Kits



Put your existing notebook drive into a FireWire or USB Case!

• FireWire + USB 2.1/1/1 Combo \$69.95

• FireWire only \$49.95

• USB 2.0/1.1 only \$39.95



2002
finalist
macworld
ed d y s

Other World Computing

Serving the Mac Universe since 1988

800.275.4576

Excellent Service

Competitive Prices

Quality Products

Expert Tech Staff



OS X ON LEGACY MACS!
FREE Installer
Software from OWC



eshop.macsales.com/osxcenter

Have the Power of X on your Pre-Beige G3 PowerMac!

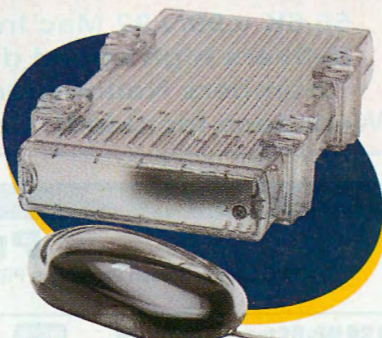
Mercury Elite FireWire & USB

Top-Rated OWC Mercury Elite FireWire Solutions are ideal for today's high speed Storage, Audio/Video, and Backup needs! High Performance and Superior Reliability come in this Elegant solution by means of the best components coupled with the Oxford911 bridge solution with data rates exceeding 40 MEGABYTES PER SECOND!

All OWC Mercury Elite solutions feature:

- Cool Blue Activity Indicator LED
- Super Quiet operation
- 2 FireWire Ports
- 1 USB Port(USB Equipped Models Only)
- Fully Suitable for Digital Audio/Video applications
- Large 2MB and 8MB Data Buffer
- U.S./International 90-240v AutoSwitching

- FireWire Cable Included
- USB Cable Included (USB Models Only)
- Intech HD Speedtools Included
- Compatible with ALL Apple OS Versions 8.5-9.2.x; Apple OS X 10.0.3 and higher (including 10.2)
- Compatible with MicroSoft Windows 98SE, ME, 2000, XP and any OS that supports Firewire or USB (USB Models Only) storage devices.
- 2 Year Warranty



Intech

All OWC Mercury FireWire Hard Drives include Intech's SpeedTools Utility for Mac.

FireWire;
USB 2.0/1.1

40GB 7200RPM 2MB	FireWire \$159.99	USB 2.0/1.1 \$179.95
60GB 7200RPM 2MB	FireWire \$179.99	USB 2.0/1.1 \$199.95
80GB 7200RPM 2MB	FireWire \$199.99	USB 2.0/1.1 \$209.95
120GB 7200RPM 2MB	FireWire \$259.99	USB 2.0/1.1 \$269.95
120GB 7200RPM 8MB	FireWire \$279.99	USB 2.0/1.1 \$289.95
180GB 7200RPM 8MB	FireWire \$349.99	USB 2.0/1.1 \$379.95
200GB 7200RPM 8MB	FireWire \$399.99	USB 2.0/1.1 \$429.95

CALL FOR MODELS 250MB AND HIGHER!

Mercury On-The-Go FireWire & USB

The Mercury On-The-Go FireWire and FireWire+USB2 are the most compact high performance storage solutions available! So small as to fit in the palm of your hand and weighing in at less than 12 ounces, these drives give the maximum performance possible utilizing the same Oxford911 bridge as our Elite Series. With data rates exceeding 30 MEGABYTES PER SECOND, this truly is high performance storage 'On-The-Go'!



Plug and Play compatible with Apple OS 8.6 - 9.2.2, OS X; WindowsSE, 2000, XP; Any OS with FireWire Support.

Drive may be powered by FireWire Bus or with included power adapter.

Key Features:

Shock Isolation System protects drive; Cool Blue LED Activity Indicator; Near Silent Operation; Large 2MB or 8MB Data Buffer; Bus Powered or with included AC Adapter; All Cables, Carrying Case; Intech SpeedTools included.

FireWire FW + USB 2.0/1.1

20GB 4200rpm 2MB	FireWire \$169.97	FW + USB 2.0/1.1 \$189.97
20GB 5400rpm 8MB	FireWire \$189.97	FW + USB 2.0/1.1 \$199.97
30GB 4200rpm 2MB	FireWire \$199.97	FW + USB 2.0/1.1 \$219.97
40GB 4200rpm 2MB	FireWire \$219.97	FW + USB 2.0/1.1 \$239.97
40GB 5400rpm 8MB	FireWire \$249.97	FW + USB 2.0/1.1 \$259.97
60GB 4200rpm 2MB	FireWire \$299.97	FW + USB 2.0/1.1 \$319.97
60GB 5400rpm, NEW 80GB	\$CALL!	

James Coates of the Chicago Tribune:

"Mac users likely will just break into smiles when they plug this high speed hard drive into the FireWire ports on their machines."



MyMac.com review 5 out of 5

Charles Carr from Computer Edge about buying an OWC Mercury drive: "You'll probably be happy you did." 4 out of 5.

"The Elite is ideal for professionals and consumers who need convenient, portable storage for large amounts of data."

OWC Mercury CD-R & CD-RW / DVD-R & DVD-RW FireWire + USB 2.0/1.1 Solutions

Burn your own CDs and DVDs for Backup, Data, Movies, Music, Presentations, and MORE! For both FireWire and USB equipped computers, we have the high speed solutions you're looking for! All Mercury CD and DVD FireWire and FireWire+USB2/1.1 utilize a custom Oxford911 bridge and the best in optical drive technology to insure the best performance and reliability that translates to no wasted media turned coasters.

All solutions feature 1yr warranty US/International Switching Power Supply, 2 FireWire Ports, FireWire Cable, 25 Pack of 80 Minute CD-R Media, full compatibility with Apple OS 8.6 - 9.2.x & OS X. Also compatible with any OS supporting USB or FireWire storage. All CD Solutions include Roxio Toast Lite 5.1.x. All DVD Solutions include CharisMac Discrite 5.x and 5 Pieces of 2X Certified DVD-R Media.



CD-R/RW External Solutions:

Compatible with Apple iTunes, Disc Burner, Roxio Toast, Discrite, Nero, and just about any Windows CD Authoring/Player software

Mercury 52x24x52x CD-R/RW with 2MB Buffer & SmartBurn Technology	FireWire \$139.99	USB 1.0/2.0 Support \$159.95
Mercury 52x24x52x CD-R/RW with 8MB Buffer & BurnProof Technology	FireWire \$159.99	USB 1.0/2.0 Support \$179.95

DVD-R/RW & CD-R/RW 'SuperDrive' Solutions:

Compatible with Apple DVD Studio Pro, Apple iTunes, Roxio Toast, CharisMac Discrite, and just about any Windows CD/DVD Authoring or Player software.

Mercury DVR-105 Pioneer 4X DVD-R/2X & DVD-RW/16X & CD-R(W)/8X 'SuperDrive'	FireWire \$379.99	USB 1.0/2.0 Support \$399.99
--	-------------------	------------------------------

OWC also stocks FireWire and USB Storage Solutions from Lacie and Ezquest. Call or visit <http://www.MacSales.com> for all of the latest products offered by OWC

FireWire & USB add-on card from only \$19.99! Connect to thousands of new USB and FireWire Products!

FEATURE PRODUCT

MacAllly \$79.95

2-port FW & 2-port USB 2.0/1.1 PCI Card

Save a slot, and add the latest USB 2.0/1.1 and FireWire support to any Mac with a PCI Slot! Compatible with Apple OS 8.6-9.2.x, OS X.

SPECIAL!

MacAllly \$19.99

3-port FireWire PCI Card

Add FireWire to ANY Mac with a PCI Slot! Plug and Play compatible with Apple OS 8.6 - 9.2.x and OS X



MacAllly 2-port USB 1.1 PCI Card \$24.95

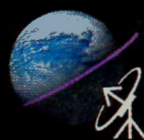
Add USB to ANY Mac with a PCI slot, Plug and Play compatible with Apple OS 8.5.1 - 9.2.x and OS X



PowerLogix RapidFire 2 Port USB 3 Port FireWire PCI Card \$59.95

FireWire and/or USB lets you connect to the Apple iPod, Digital Cameras, Digital Camcorders, CD/DVD Burners, Hard Drive Storage, Keyboards, Mice, Scanners, Printers, and MUCH MORE! If your computer didn't come with one of these interfaces, they are easy to add so you too can plug and play USB & FireWire devices!





Other World Computing

Serving the Mac Universe since 1988

800.275.4576

Excellent Service

Competitive Prices

Quality Products

Expert Tech Staff



OS X ON LEGACY MACS!

FREE Installer
Software from OWC



eshop.macsales.com/osxcenter

Have the Power of X on your Pre-Beige G3 PowerMac!



finlist
macworld
eDdy's

56.6K v.90/v.92 Mac Internet Access only \$9 per month! WWW.FASTERMAC.NET
delivers high speed dial up Internet Access catered just for us Mac Users. Local
Numbers Nationwide, 5 Free E-Mail Addresses @ **fastermacs.net**, 10 MB Free
Webpace included! Call or visit **www.FasterMacs.net** for information or to signup.

OWC Laptop Screen Protectors

Protect your investment!

OWC Laptop Screen Protectors PREVENT marks on your PowerBook LCD Screen! FREE iKlear Apple Polish included for a 'Klean Start!'

**LSP WallStreet, Lombard,
Pismo \$14.99**



**LSP for all PowerBook
G4 Models \$17.95**



**LSP for all
iBook Models \$13.95**



Made in the USA of top quality, glove soft leather, OWC LSPs are both a durable and attractive solution to a known problem.

PowerBook Accessories

**NewerTech TiHandle & Stand PowerBook G4
\$39.95**

Add easy an easy carry handle
that doubles as a great stand to
any Apple PowerBook G4! No
modification required, attaches
using standard Apple screw
position on the back of the
PowerBook. Does not void
warranty! 5 Year NewerTech
Warranty.



OWC Stocks 100s of
Accessories for your PowerMac,
PowerBook, iBook! Call or visit
www.macsales.com to see all
the Carrying Cases, Mice,
Keyboards, Audio/Video
Accessories, Power
Adapters(Auto/Air/AC), and
More that we offer!

Mac Audio & Video



M-Audio Audiophile 2496 PCI Card \$148.99

Uncompromising quality for Audio input and output for
serious Audio work on your Mac!

Full 24 Bit/96khz 4 Port Audio In and Outs provide for
MultiTrack recording, MIDI Recording and Playback, Home
Theater & MORE! Computer Music Magazine says: How does
it sound? Well, in a word, stunning.



**M-Audio Sonica 24-bit Dolby Digital 5.1
/DTS/Dolby Pro-Logic Upgrades \$79.00**

Plug and Play USB device that lets your Mac go all the way
with Output/Playback!

PowerBook Carrying Cases



OWC TiG4 Carrying Case \$29.95

Keyboards and Mice



iOptiNet and iOptiNet Jr. Optical Scrolling Mice -
5 color covers included

MacAlly iOptiNet 3 Button USB \$31.99

MacAlly iOptiNet Jr. 3 button USB \$27.99

Same as iOptiNet, but ideal for travel or smaller hands!

Mac PowerBook Batteries



**Apple PowerBook G3 Lombard
(yr '99) / Pismo (yr '00) \$149.99**

Mac PRAM Batteries



3.6V PRAM Replacement Battery \$7.95
High-Capacity 3.6V Lithium Cell



4.5V PRAM Replacement Battery \$8.95
Standard Rayovac 4.5V Computer PRAM Battery

GriffinTech 'Cool Goodies'



Griffin PowerMate USB \$44.95
Rotary Audio Controller and more!



**Griffin iMic USB
MicroPhone Adapter \$36.97**

Griffin iMate USB to ADB Adapter \$38.95

Use your ADB devices via USB!



**Roadtools Podium CoolPad
\$29.95**

For PowerBook, iBook, ANY-Laptop!
Available in Black or White



**Roadtools Traveler CoolPad
\$19.95**

For PowerBook, iBook, For PowerBook,
iBook, ANY-Laptop! Available in Black or
White. Rotates 360 degrees with ease.



OWC Mobility Bundle #4 for G4 PB \$54.95

Includes TiG4 LSP, LapBottom, and RoadTools Podium(black) - Save 25%!



OWC Mobility Bundle #6 for iBook \$49.95

OWC Apple Bit Kit \$7.95

Just what you need for installing memory or a hard drive and
more for Apple Desktops, PowerBooks, iBooks/More



Other World Computing

Serving the Mac Universe since 1988

800.275.4576

Excellent Service

Competitive Prices

Quality Products

Expert Tech Staff

Have the Power of X on your Pre-Beige G3 PowerMac!

Other World Computing is the Mac Upgrade Expert! We stock the FASTEST G3 / G4 Upgrades, Video Cards, and MORE! Let us make Your Mac a FASTER Mac!

PowerBook Processor Upgrades

NuPower Pismo G4/500MHz \$299.95



NewerTech is BACK! Back with newer and FASTER upgrades for you Mac! Give your PowerBook G3 FireWire (aka yr2000/Pismo) G4 Power! Have the full capabilities of the AltiVec engine at your disposal providing a night and day difference in performance for all AltiVec enhanced applications as well as OS X at large!

BlueChip (Lombard) LS G4/500MHz with 1MB 2:1 \$397.99



Same machine on the outside, but now fully G4 Enabled with AltiVec can be yours on the inside!

Crescendo WS G4/500MHz with 1MB 2:1 \$395.99

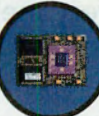


Upgrade your Wallstreet VII G3 PowerBook (any speed) to the power of a G4/500MHz with AltiVec! Full steam ahead for all the AltiVec enhanced Applications and OS X!
As an added bonus, you can also have up to 512MBs of memory now too!

OWC Mercury ZIF Upgrades

G4/450MHz with 2:1 1024k L2 cache **\$179.99**
G4/500MHz with 2:1 1024k L2 cache **\$249.99**

Upgrades for PowerMac G3 Beige, G3 Blue & White, G4 'Yikes' PCI. High Quality, High-Performance, High-Reliability. OWC uses ONLY processors rated for the speed advertised, if not faster!



Upgrade your PowerMac 7300/7500/7600/8500/8600/9500/9600; PowerMac Servers; and Compatible Clones to the Power of a fast G3 or G4 Processor and RUN OS X TOO!

Only from OWC, XpostFacto is a FREE software utility that allows Apple OS X to be used on MANY Legacy PowerMac Models. With only THREE EXTRA CLICKS, you can have your Pre-G3 PowerMac up and running with OS X just like the Mac models Apple does support! Check it out - <http://eshop.macsales.com/osxcnter/>

G4 & G4 PCI Upgrades

Upgrade your PowerMac 73/75/76/85/86/95/9600; UMax S900/J700; PowerComputing PowerCenter/PowerTower/PowerWave to a faster G3 or G4 Processor today! A 2nd Life for your still VERY capable and potentially VERY powerful, trusty Mac! Fully compatible with all software and hardware; supports Apple OS 8.6 - 9.2.2, OS X 10.1 and higher. Note: These upgrades replace your existing processor daughtercard, they do NOT take up a precious PCI slot!

Crescendo G4/800MHz 1MB **\$379.95**
Crescendo G4/700MHz 1MB **\$289.95**
Crescendo G3/500MHz 1MB **\$179.95**
Crescendo G3/450MHz 1MB **\$139.99**



AGP Processor Upgrades

G4/800MHz and up to DUAL G4/1.2GHz PowerMac Upgrades

Get 2X, 3X, even more than 5X the performance from your existing Apple G4 Cube or PowerMac G4/350-733MHz AGP Equipped Model! Extreme speed is just a simple processor upgrade away! Specify PowerMac G4 AGP or Cube when ordering *Dual 1GHz for PowerMac G4 AGPs only.

Encore / ST AGP Upgrades

Sonnet upgrades for Apple G4 Cube, PowerMac G4 Sawtooth, AGP Graphics, Gigabit Ethernet, Digital Audio, QuickSilver, Server models 350MHz through 1GHz, including Dual Processor models.

Encore ST G4/800MHz with 256K L2 on-chip, 2MB DDR L3 Cache **\$359.99***

Encore ST G4/1GHz with 256K L2 on-chip, 2MB DDR L3 Cache **\$559.99****

Encore ST G4/1.2GHz with 256K L2 on-chip, 2MB DDR L3 Cache **\$679.99***

* Cube Installation Kit to use Encore G4 / 800MHz or G4/1.2GHz in G4 Cube **\$29.00**

** Cube Installation Kit to use Encore G4 / 1GHz in G4 Cube **\$79.95**

Giga G4 AGP Upgrades

Giga Design upgrades for PowerMac G4 Sawtooth, AGP Graphics, Gigabit Ethernet, Digital Audio, QuickSilver, Server models 350MHz through 1GHz, including Dual Processor models.

Giga G4/800MHz with 256K L2 on-chip, 2MB L3 cache **\$299.95**

Giga G4/1GHz with 256K L2 on-chip, 2MB L3 cache **\$479.99**

Giga G4/1.2GHz with 256K L2 on-chip, 2MB DDR L3 cache **\$589.99**

PowerForce G4 AGP Upgrades

PowerLogic upgrades for Apple G4 Cube, PowerMac G4 Sawtooth, AGP Graphics, Gigabit Ethernet, Digital Audio, QuickSilver, Server models 350MHz through 1GHz, including Dual Processors models.

PowerForce G4/800MHz with on-chip 256K L2, 2MB L3 cache **\$325.99**

PowerForce G4/1GHz with on-chip 256K L2, 2MB L3 cache **\$489.99**

PowerForce G4/1.2GHz with on-chip 256K L2, 2MB L3 cache **\$599.99**

PowerForce G4/800MHz x2 DUAL with 2MB L3 cache **\$749.99**

PowerForce G4/1GHz x2 DUAL with 2MB L3 cache **\$889.99**

PowerForce G4/1.2GHz x2 DUAL with 2MB L3 cache **\$1089.99**

APPLE OS X 10.2 'Jaguar' \$79.99!

APPLE OS 9.1 ONLY \$49!
CD with license

ATI Video Cards



Radeon 9000 Mac 64MB DDR AGP Card \$167.99

Get more from your AGP equipped PowerMac G4 and unleash its Video potential with the ATI Radeon 8500 MacEdition! Compatible with any PowerMac G4 that has an AGP slot, this upgrade provides superior 2D/3D display acceleration for high performance gaming and video applications. A great upgrade for Apple OS 10.2 Quartz Xtreme video acceleration too - which requires 32MB V-RAM MINIMUM!



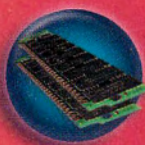
Radeon 7000 Mac 32MB DDR PCI Card \$119.99

Unleash the power of your PowerMac - Don't let video slow you down anymore! Highly Accelerated 2D/3D - HYPERZ Technology for improved performance - Powerful 3D Graphics - Performance - Open GL Support (Quake Tests show Frame Rates upwards of 50 PER SECOND!) - Full Quicktime Support - Built In Video Out (S-Video & Composite) for TV/NTSC display - Full DVD Playback supported - Resolutions from 640x480 to 2048x1536 supported! - Features Standard VGA and DVI display connectors - Use any standard display or DVI Flat Panel! - Supports Apple OS 9 and OS X



New PowerBook, iMac and iPod with faster speeds and revolutionary designs

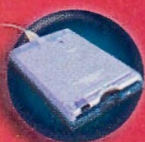
FREE from MacMall!



up to
512MB RAM FREE! (Up to a \$300 Instant Value!)
Available with purchase of select Apple® computer models.



Office Romance! Save \$300!
Purchase any Mac & get Microsoft Office v. X for only \$188.99! See below for details. #660562



FREE USB Floppy Drive!†
With any iMac or eMac purchase. See below for details. #997127



MacMall Exclusive! FREE Targus Carrying Case!™
With any Apple 15" PowerBook or iBook purchase. While supplies last. #780029

20GB Apple iPod!
with Protective Carrying Case

\$494! #551634

Also available for Windows!
Call for details.

10GB Apple iPod with Carrying Case
\$394!
#551632



NEW! 17" widescreen 1GHz PowerBook G4!

The megawide screen is the first thing you'll notice about the world's first notebook computer with a 17" display. When open, it's vast. This breathtaking display offers the same viewing area as a 19" CRT monitor. It supports a resolution of 1440 x 900 pixels—with room aplenty for all of your menus, toolbars and palettes.

Revolutionary design!

- ▶ Up to 1GHz PowerPC G4 processor
- ▶ Up to 512MB SDRAM ▶ Up to 60GB hard drive
- ▶ Combo (DVD/CD-RW) or SuperDrive (DVD-R/CD-RW)
- ▶ Up to 17" widescreen active-matrix display
- ▶ ATI Mobility Radeon 9000 with up to 64MB of DDR SDRAM or NVIDIA GeForce4 440 Go
- ▶ Built-in 10/100BASE-T or 10/100/1000BASE-T
- ▶ Built-in Bluetooth 1.1 and built-in AirPort Extreme Card (on the 17" model only)
- ▶ Unique fiber optic backlit keyboard with laser-etched keys



NEW! 17" widescreen PowerBook G4 only
FREE 512MB Extra RAM!

\$3,294! #114794

Apple PowerBook G4 Series

#766962	1GHz G4/15"/1GB Total*/SuperDrive	Price Drop!	\$2,794*
#764348	867MHz G4/15"/768MB Total*/Combo		\$2,294*
#114794	1GHz G4/17"/1GB Total*/SuperDrive	NEW!	\$3,294

The smallest PowerBook—affordable for everyone!

Sports a leading-edge design!

The 12.1" PowerBook G4 is smaller than the iBook & even the PowerBook Duo and yet it features a slot-loading combo drive or SuperDrive.

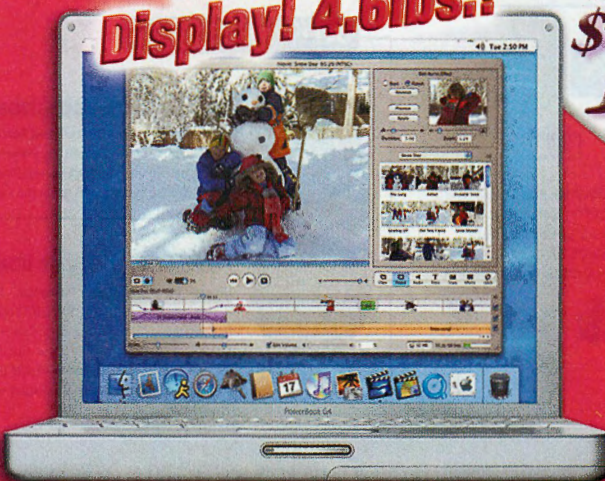
- ▶ 867MHz PowerPC G4 processor
- ▶ 12.1" TFT XGA active-matrix display
- ▶ 256MB SDRAM ▶ 40GB hard drive
- ▶ Combo DVD-ROM/CD-RW drive or SuperDrive
- ▶ One FireWire 400 and two USB Ports
- ▶ NVIDIA GeForce4 420 Go with 32MB of DDR SDRAM ▶ Built-in Bluetooth
- ▶ 47-watt-hour lithium-ion battery with up to 5 hours of battery life ▶ AirPort Extreme ready

New! 12.1" PowerBook G4 starting at

FREE AirPort Extreme Card!

\$1,794!

New 12.1" Display! 4.6lbs.!



Authorized Reseller

12.1" PowerBook G4 Series

#114797	867MHz G4/12"/256MB Total*/Combo	\$1,794^A
#15018	867MHz G4/17"/256MB Total*/SuperDrive	\$1,994^A

Power Mac models in stationary display sizes!

What's New in the New Power Mac G4?

Dual 1.42GHz PowerPC G4, FireWire® 800, AirPort
Extreme at 54mbps and off the chart graphics!

Rips through digital video and 3D projects!

The new Power Mac G4 combines rock solid engineering reflective of the full-throttle Xserve architecture with new technologies for massively enhanced output and connectivity.

Built-to-order to fit any use!

You can fill the Power Mac G4 with up to 2GB of high-speed DDR SDRAM, get it with a 4X SuperDrive that's twice as fast at burning DVDs, choose up to four internal hard drives up to 720GB, get unwired with an AirPort Extreme Card and add scorchingly fast graphics.

- ▶ Up to dual 1.42GHz PowerPC G4
- ▶ Up to 2MB DDR SDRAM per processor
- ▶ Up to 512MB PC2700 333MHz DDR SDRAM
- ▶ Up to 120GB Ultra ATA/100; 7200RPM

- ▶ SuperDrive (DVD-R/CD-RW) or Combo (DVD-ROM/CD-RW)
- ▶ Up to 167MHz bus system

New! Power Mac G4 starting at

FREE 512MB Extra RAM!

\$1,494!

Apple Power Macintosh Series

#131028	1GHz DP G4/768MB Total*/Combo	\$1,494*
#131033	1.25GHz DP G4/768MB Total*/Combo	\$1,994*
#131037	1.42GHz DP G4/1GB Total*/SuperDrive	\$2,694*



**Speeds up
to 1.42GHz!**

Display and speakers sold separately.

Makes a powerful impact!

- ▶ Up to 800MHz PowerPC™ G3 processor
- ▶ Features screen sizes up to a 14.1"
- ▶ Up to 256MB of PC100 SDRAM ▶ Up to 30GB
- ▶ 24X CD-ROM or DVD-ROM/CD-RW Combo Drive
- ▶ 1 FireWire® 400 and 2 USB ports

**New! iBook G3 starting at
FREE up to 384MB Extra RAM!**

\$994!

Apple iBook Series

#764345	700MHz G3/12.1"/384MB Total*/CD-ROM	\$994*
#764346	800MHz G3/12.1"/384MB Total*/Combo	\$1,294*
#766964	800MHz G3/14.1"/640MB Total*/Combo	\$1,494*

Up to \$200 PRICE DROP on eMac!

- ▶ 700MHz or 800MHz PowerPC™ G4 processor
- ▶ Up to 256MB SDRAM ▶ Up to 60GB hard drive
- ▶ Combo drive (DVD-ROM/CD-RW) or SuperDrive™ (DVD-R/CD-RW) ▶ 2 FireWire 400 & 2 USB ports
- ▶ 56K ▶ 10/100BT Ethernet
- ▶ Mac OS X and Mac OS 9



**eMac G4 starting at
FREE 256MB Extra RAM!**

\$994!

Apple eMac G4 and iMac G3

#590884	700MHz eMac G4/384MB Total*/Combo	\$994*
#590886	800MHz eMac G4/512MB Total*/SuperDrive	\$1,294*
#552071	600MHz iMac G3/256MB Total*/24X CD-ROM	\$794*

New iMac G4 — up to 1GHz!

- ▶ 800MHz or 1GHz PowerPC™ G4 processor
- ▶ Up to 256MB of SDRAM ▶ Up to 80GB HD
- ▶ Combo drive (DVD-ROM/CD-RW) or SuperDrive™ (DVD-R/CD-RW) ▶ Built-in 17" (viewable) widescreen TFT active-matrix display



**iMac G4 starting at
FREE 512MB Extra RAM!**

\$1,294!

Apple iMac G4 Series

#132754	800MHz G4/15"/768MB Total*/Combo Drive	\$1,294*
#132760	1GHz G4/17"/768MB Total*/SuperDrive	\$1,794*

New from Apple!

AirPort Extreme AirPort Extreme Base Station with Modem

only **\$249**** #114811

AirPort Extreme Base
Station without Modem

only **\$199**** #114796

New from Apple!

AirPort Extreme Card

Up to five
times faster
than before!

only **\$99****

#114812



New from Apple!

Keynote 1.0

Easily create
truly stunning
presentations!

only **\$99**

#114793



New from Apple!

Final Cut Express

Now everyone
can edit like
the pros.

only **\$299**

#114723



Adobe®

Photoshop® 7

Work smart. Save big!

World standard
image editing!
upgrade only

\$134.94

#968964



hp laserjet 1200se Printer

1200dpi, 15ppm

only **\$378.98**

#958348

Call for details.



200GB FireWire Hard Drive

7200RPM; 8MB
buffer cache; 10ms
average seek time

only **\$499**

#644131



Norton AntiVirus QuickBooks Pro 5.0

Intuit® Bundle
as low as

\$199.99

#107382

Price after \$120 mfr.
mail-in upg.rebate



QuarkXPress 5.0

Produce the highest
quality documents
for print, Web and
other media!

only **\$728.99**

#965797



TurboTax Deluxe for Mac

Intuit® only

\$49.95

#753290

Call for details.
Purchase with
Quicken 2003 and save \$30!



*FREE RAM OFFER-All models require an additional \$39.99 professional installation fee. RAM is free after \$49.95 MacMail mail-in rebate for iMac G4 models. Offer expires 4/15/03. **MICROSOFT OFFICE v.X OFFER-Receive a full version of Microsoft Office v.X for \$188.99 with purchase of any Apple computer. Offer expires 4/7/03. †FREE MYOB FirstEdge OFFER-While supplies last. Additional shipping charges apply. ‡FREE USB FLOPPY DRIVE OFFER-USB Floppy Drive is FREE after redemption of \$49.95 MacMail mail-in rebate. Price before rebate is \$49.95. ***Targus Carrying Case OFFER-Targus Carrying Case is FREE after redemption of \$29.95 MacMail mail-in rebate. Price before rebate is \$29.95. While supplies last. **Requires AirPort Extreme Ready System-AirPort Extreme ready systems are those with mini-PCI support form factor. AirPort Extreme cards cannot be used in older AirPort card bays (PCMCIA form factor slot). †FREE AirPort Extreme Card OFFER-Available on #114797 and #115018. An additional \$39.99 professional installation fee applies.

Priority Code: ZMM03MADT4

Call 1-800-MACMALL or visit macmall.com

MacMall

Go **FURTHER** with Dr Bott

extend**AIR**

Airport Extreme up to 500 feet!

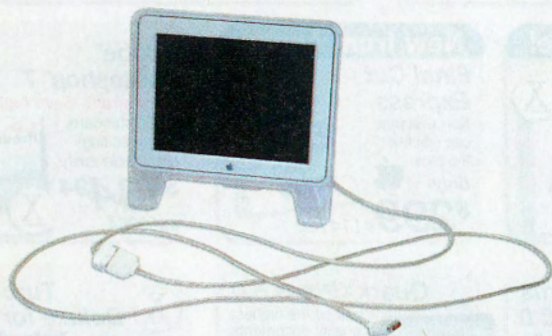
Boost your Airport Extreme coverage area with
ExtendAIR Direct and ExtendAIR Omni.



Macworld
BEST
OF SHOW
2003

ADC Extension

Extend your Apple Flat Panel 10 feet.



ADC Extension **PRO**

Extend your Apple Flat Panel 15 feet.
Active electronics allow daisy-chaining
up to 60 feet without video degradation.



Dr Bott

Contact your local **RESELLER** to purchase Dr. Bott products.

www.drbott.com

toll free: 800.541.1230

503.582.9944

Call the Mac Experts!

REFURBISHED COMPUTERS

Units are factory refurbished with a one year Apple warranty. Buy AppleCare and get a three year warranty and much more!



There's virtually no difference between these factory refurbished machines and the brand-new ones. Each and every refurbished computer comes with Apple's full-year warranty!

iMac G3/500, 64 MB RAM, 20 Gb HD, CD-ROM, 56K Modem	.....\$599
iMac G3/600, 128 MB RAM, 40 Gb HD, CD-ROM	.....\$688
iMac G4/700, 128 MB RAM, 40 Gb HD, CD-RW, 56K Modem	.....\$1149
iMac G4/700, 256 MB RAM, 40 Gb HD, ComboDrive, 56K Modem	.....\$1188



Our inventory and prices are always changing, call us or go online for current specials!

PowerBook G4/667, 256 RAM, 30 Gb, ComboDrive	.....\$1888
PowerBook G4/800, 512 RAM, 40 Gb, ComboDrive	.....\$2099
PowerBook G4/1-GHz, 512 RAM, 60 Gb, SuperDrive	.....\$2499
iBook G3/600, 128MB RAM, 20 Gb HD, CD-ROM	.....\$799
iBook G3/700, 128MB RAM, 20 Gb HD, CD-ROM	.....\$899
iBook G3/800, 128MB RAM, 30 Gb HD, ComboDrive	.....\$1188
iBook G3/800, 256MB RAM, 30 Gb HD, ComboDrive, 14.1" Screen	.....\$1399

DISPLAYS & PRINTERS

LACIE We've Got The New Lacie

Electron Blue IV CRT Monitors. Stellar Color, Clarity and Quality. 2048x1536 Maximum Resolution.



Epson C60 Bundle - Includes USB Cable, Print-Master Software, Epson Ink Pen, Free black Ink Cartridge Certificate! Only \$88
Lexmark Optra S 2455N LaserPrinter \$949

USED COMPUTERS

PowerCenter 604/150 MHz 32MB RAM, 26b HD	.....\$69
7200/120 MHz 16MB RAM, 1.2 Gb HD, CD	.....\$139
7600/132 MHz 64MB RAM, 1.2 Gb HD, CD	.....\$166
G3/266 MHz 128MB RAM, 66b HD, CD	.....\$419
PowerBook G3/500 MHz 128MB RAM, 26b HD, CD	.....\$549
iMac G3/350 MHz 64MB RAM, 76b HD, CD	.....\$589
iBook G3/500 MHz 192MB RAM, 10Gb HD, CD	.....\$784
Tower G4/500 MHz 128MB RAM, 10Gb HD	.....\$799
PBook G4/400 MHz 384MB RAM, 10Gb DVD	.....\$1599

A MAC FOR JUST **\$69?**

It's true! PowerMax has an extensive line-up of quality, pre-tested used Macs -- all with a 90-day warranty.



SUPER LOW-PRICED PACKAGE!

Wow! A Great System For Minimal Bucks!
Includes a Factory Refurbished eMac G4/700, Epson C60 Color Printer Package and Epson 1250 Scanner!

Only \$866

Get A Free Shuttle Pro with Final Cut Pro 3.0 Purchase!

Only \$995

Buy any New Mac and get MS Office for OSX for only

\$199

CAMERAS AND SOFTWARE

Get a **FREE Case Logic Photo-Video Bag** With Any New Digital Camera!



Order Online or Call One of Our Mac Experts!

WWW.POWERMAX.COM

Daily specials & blowouts • Bargain Basement Deals • New, used & refurb lists
Digital video packages • Important National Macintosh News Updated Daily!

POWER MAX

Knowledge is Power

Personal Financing • Fast P.O. Approvals • Business Leasing • Weekly specials on our web site

Are You A Member Of A User Group?

www.applemugstore.com

PowerMax is a division of Computer Stores NW, Corvallis, OR.

Macintosh User Group members enjoy access to a very special Apple-sponsored web site featuring super deals on the latest Apple products and more! If you are currently not a member of an Apple User Group and would like access to the MUG Store special offers, discounts, and resources, contact an Apple User Group near you to sign up.



Size DOES Matter!

Apple now offers a super compact 12" PowerBook and a spectacular 17" PowerBook. Whatever your preference, Apple's got the notebook for you!



WE TAKE TRADE-INS!

Looking to trade-in your old Mac? We'll take your Mac OS computer in trade toward the purchase of new product. Call one of our expert Mac consultants for full details.

Free Ram with Select iMac Purchases!
Call for the latest pricing!

Get TONS of Free Stuff When You Buy A New G4 Power Mac!

Buy an iBook, Get a Free Carrying Case!
Hurry, this is a limited time offer!

SUPER SPECIALS!

Tear Into Jaguar OSX 10.2 For Just \$95!*

*After \$30 Mail-In Rebate. Downloadable from our website.



Get Macworld's Guide to Troubleshooting OSX Free With Purchase!

VST FireWire™ Desktop Hard Drives. 2 Ports!
20GB only \$99
30GB only \$129

A New Laser Printer For Only \$249?
Ask Us How!

Free Koss KSC-50 Head-Phones! With Any New iPod Purchase.

Inland Shielded ProSound 2000 Speakers. 20 Watts!
Only \$19.99!

Custom Macs, Built To Order!
We can upgrade your new Mac with extra hard and optical drives, more RAM, powerful video cards and more. Call our experts and find out how!

GET THE MAC YOU'VE ALWAYS WANTED!

ProScope
DIGITAL USB MICROSCOPE

This amazing, hand-held microscope captures images on your computer screen at 10X, 50X, 100X, even 200X magnification! A great tool for industrial, law enforcement and educational purposes!

Only \$199! (Mac or PC)

STORAGE SOLUTIONS

LACIE	60GB 5400 RPM USB 2.0 D2 Hard Drive	.....\$189
The New Lacie D2 line sports larger capacities, increased transfer rates and greater mobility!	120GB 7200 RPM USB 2.0 D2 Hard Drive	.....\$269
	200GB 7200 RPM FireWire D2 Hard Drive	.....\$439
	250GB 5400 RPM FireWire D2 Hard Drive	.....\$489



We Carry a Huge Selection Of Hard Drives, CD-Burners and Removable Media from All Major Manufacturers!

Local: (503) 624-1827 • Fax: (503) 624-1635
email: sales@powermax.com



Prices subject to change without notice. Prices reflect cash discount. Credit card orders strictly verified against fraudulent use. With use of credit card as payment customer acknowledges that some products are subject to final sale. Many prices are limited to stock on hand. All brand or product names are registered trademarks of their respective holders.

Krazy Klassy iKovers

iMac to 18"
Washable suede

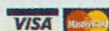
Call for Custom Orders and Logos

Screen Cover.....\$29.95

Keyboard Cover...\$15.95

Combo Package...\$39.95
(Screen and Keyboard Cover)

S&H.....\$4.95



To order, call (888) 223-7264
or FAX (858) 488-7176

santacruzdigitalstyles.com

SNOWSEAL & GISTICK



Laptop Cases for 12" to 17" Apple Portables
Unique New Bags with a Clear Pouch
for Apple Snow iBook & PowerBook G4

(800) 228-6091

Highest Quality, Made in the USA

MAC-PRO SYSTEMS & SOFTWARE www.mac-pro.com

Visit our Web Site or Call for a
Great Selection of iBooks, TiBooks,
Towers, G3 & G4 iMacs & Many
Hard to Find Older Mac Models!

eMac G4 700mHz
128mb RAM, 40gb HD
CD ROM Drive
Apple Refurb/1 Yr. War.

\$749

Sign up for our Mailing List!

Any Ad is a Mac-Pro Ad!

800-525-3888

USED MACS



**MAC
OF ALL
TRADES
.COM**

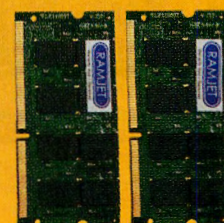
800.304.4639

**BUY or SELL
ONLINE**

sales@macofalltrades.com

RAMJET

MAC MEMORY



1Gig PowerBook
Kits Available!

Secure Online Ordering at:

www.ramjet.com

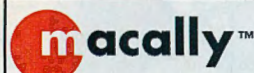
- Same Day Shipping
- Lifetime Warranty
- Educational PO's Accepted

or by calling:

1-800-831-4569



Save Money on Top Quality RAM



We Proudly Present Our New Mac Peripherals For 2003!

With functionality and form in mind, Macally brings to you our newly designed
USB Wireless keyboard, radio frequency wireless mouse, retractable cables and
many other new peripherals. Our products will greatly improve your productivity
and complement your Mac.

iceSTATION

Convert your notebooks to desktops



Call us for dealers near you 1.800.644.1132

www.macally.com



Noise Reduction
HEADPHONES



RetractableCable
FireWire, USB, Phone and Ethernet



rFMOUSEJR
Wireless Optical Mini Mouse



rFKEY
USB Wireless Keyboard

Works with OS X



POWERON
computer services
800-673-6227



G3, G4, iMAC & eMAC DEALS

G3Beige 233MHz 32/4GB/CD/ENET	\$279.99	iMac 333MHz 64/6GB/CD/ENET/56K	\$449.99
G3Beige 266MHz 64/4GB/CD/ENET	\$299.99	iMac 400MHz 64/6GB/CD/ENET/56K	\$549.99
G3 Ba.W 300MHz 32/4GB/CD/ENET/56K	\$349.99	iMac 600MHz 128/40GB/CD/ENET/56K	\$649.99
G3 Ba.W 350MHz 64/4GB/CD/ENET/56K	\$399.99	iMac 700MHz 256/60GB/CD/ENET/56K	\$699.99
G3 Ba.W 400MHz 128/6GB/CD/ENET/56K	\$449.99	eMac 700MHz 128/40GB/CD/ENET/56K	\$779.99
iMac 233MHz 32/4GB/CD/ENET/56K	\$359.99	eMac 700MHz 128/40GB/CD/ENET/56K	\$899.99

PRE-G3 CLEARANCE

PPG 6360/160MHz 16/1GB/CD	\$39.99	AI-In-One 5200 16/500MB/CD/14" Mtr	\$59.99
PPG 7220/200MHz 16/1GB/CD	\$49.99	AI-In-One 5260 16/500MB/CD/14" Mtr	\$59.99
PPG 8500/180MHz 64/2GB/CD	\$89.99	AI-In-One 5400 32/1GB/CD/15" Mtr	\$79.99



CD-R & DVD DEALS

Apple epro 1800i 12x CDROM SCSI	\$49.99	Apple epro 408 TH 50 pin SCSI	\$59.99
Apple epro 3800i 24x CDROM SCSI /ATAPI	\$69.99	Mac Ready 968 TH 50 pin SCSI	\$69.99
Apple epro 6x or 8x DVD ATAPI	\$89.99	Mac Ready 80GB TH 63/64 EIDE	\$89.99
iMac 24x CDROM Trayloading	\$79.99	Mac Ready 80GB TH 63/64 EIDE	\$99.99
iMac 24x CDROM Slotloading	\$89.99	Mac Ready 120GB TH 63/64 EIDE	\$119.99
iMac 4x or 6x DVD Slotloading	\$99.99	Atto UL20 Dual Channel PCI SCSI	\$69.99
iMac internal CD/RW Slotloading	\$179.99	Ext USB 2.0 3.5" & 5.25" Enclosure CD/HD	\$59.99
DVD Decoder Card B & W G3	\$69.99	Ext Firewire 3.5" & 5.25" Enclosure CD/HD	\$69.99

HARD DRIVE & CDROM CLEARANCE

Apple epro 300i 2x CDROM SCSI	\$17.99	Apple epro 40MB-400MB IDE / SCSI	\$9.99
Apple epro 600i 4x CDROM SCSI	\$22.99	Apple epro 500MB-940MB IDE / SCSI	\$14.99
Apple epro 1200i 8x CDROM SCSI	\$34.99	Apple epro 168 TH 50 pin SCSI or IDE	\$19.99
Apple epro 2x DVD ATAPI	\$39.99	Apple epro 268 TH 50 pin SCSI or IDE	\$39.99
MacAlly 2 port USB PCI	\$34.99	UniBrain 3 port Firewire PCI	\$19.99
MacAlly 2 port USB 2.0 PCI	\$34.99	MacAlly USB/Firewire Combo PCI	\$44.99



SOFTWARE DEALS

Adobe After Effects 5.0 MAC	\$269.99	External 56K v.90 Serial Modem	\$59.99
Adobe Illustrator 9.0 Upgrade MAC	\$49.99	PCMCIA 56K v.90 Xlink Modem	\$59.99
Corel KPT 6.0 Plug-Ins MAC	\$69.99	Global Village 56K v.90 Ba.W Modem	\$39.99
Corel Knockout 1.5 MAC/WIN	\$69.99	Apple ATI RAGE PRO 16MB AGP	\$29.99
Deneba Canvas 7.0 Pro MAC	\$149.99	Apple ATI VR PRO NTSC (TV) PCI	\$49.99
MacOS 8.0 CDROM 68040-604e	\$49.99	Nokia/NEC 17" MultiScan Monitor	\$79.99
MacOS 8.1 CDROM 68040-G3	\$59.99	Hansol 900G 20" MultiScan Monitor	\$179.99
MacOS 8.5 CDROM 601-G3	\$89.99	Apple 20" MultiScan Color Monitor	\$149.99
MacOS X 10.0 CDROM G3-G4	\$69.99	Beige 15" TFT FLATSCREEN Mtr	\$299.99
MAC GAMES (Check the Web)	IN STOCK	Black 17" TFT FLATSCREEN Mtr	\$399.99

MISCELLANEOUS CLEARANCE

Apple ADB Mouse II	\$32.99	MacAlly Parallel to SCSI Adapter Cable	\$19.99
Apple ADB AppleDesign Keyboard	\$24.99	USB to Parallel Printer Converter	\$19.99
Apple ADB Extended Keyboard II	\$27.99	Apple COMM SLOT I ETHERNET	\$19.99
Logitech USB 3 button Scroll Mouse/GO	\$19.99	Apple COMM SLOT II ETHERNET	\$29.99
Kensington USB 5 button Scroll Mouse	\$24.99	Asante NuBus ETHERNET 10BT	\$99.99
MacAlly ADB Single button Mouse	\$22.99	ETHERNET to SERIAL Bridge	\$79.99
MacAlly ADB Mouse "Ladybug or US Flag"	\$19.99	HP Inkjet 680C Printer Serial	\$99.99
MacAlly iBall II USB Trackball	\$29.99	StyleWriter & LaserWriter Ink	10% off
MacAlly iStick USB Joystick	\$29.99	READER RABBIT SERIES	\$7.99
MacAlly iPen USB Tablet-less Pen Mouse	\$19.99	Learn to Speak Spanish Italian Chinese	\$19.99
MacAlly iBall II USB Trackball	\$29.99	Learn to Speak Spanish Italian Chinese	\$19.99
Griffin Adapters	SOLD HERE	MAC GAMES (Check the Web)	IN STOCK

WWW.POWERON.COM

NO CREDIT CARD SURCHARGE. 30-day return policy. 30% restocking fee. 90-day warranty. PRODUCTS ARE USED AND/or REBUILT/REMANUFACTURED unless otherwise noted. New products carry manufacturer's warranty and are not covered by PowerOn. All brands and product names are registered to their respective holders and are respectfully acknowledged.

PHONE SALES

WEB SALES

8am-5pm PST M-F 24 hours / 7 days
8801 Washington Blvd., STE. 101 • Roseville CA 95678
tel 916-677-6227 • 916-677-6228 fax

Any Place, Any Time . . .

EYE TV
DIGITAL VIDEO RECORDER

Any Place

EyeTV lets you watch your favorite TV shows on your Mac or record them onto your Mac's hard disk to watch later . . . on a plane, at the beach, anywhere!



Any Time

With EyeTV you can watch shows when it is convenient for you. It's like making the networks rearrange their schedules just for you!

Make TV fit into your busy life,
not the other way around.



Macworld
BEST OF SHOW
2004

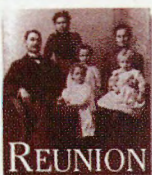
Please visit us at Macworld Expo booth 2049!

www.elgato.com

FAMILY HISTORY - GENEALOGY

REUNION® 8

Reunion 8 is the perfect tool to organize your family history. Plenty of room for names, dates, places, stories, notes, tidbits, and sources. Include all your favorite pictures, sounds, and home movies. Automatically build multimedia web pages to share your family history on the Internet! Print large, colorful tree charts, timeline charts, and fan charts for family reunions. Fun and educational for the whole family. Reunion 8 takes advantage of OS X and includes over 100 new features and enhancements!



Leister Productions
web site/demo: www.LeisterPro.com
e-mail: info@LeisterPro.com

To order, call...
MacConnection 800-800-2222

Macintosh Web Hosting & Co-Location



Special FREE hosting offers for MacAddict Readers!

SATISFACTION GUARANTEED!

www.inno-tech.com/MacAddict
877-858-7722

InnoTech
INTERNET PRESENCE SPECIALISTS

Exclusive hosting provider for **MacAddict**

MacAddict.com

GET WHAT YOU NEED

ImageCaster™

The complete webcam broadcasting solution

Portraits & Prints™

Arrange, enhance and print your digital photos

**Easy to use...
Powerful...
Affordable...
You can have it all.**

DayChaser™

Schedule daily appointments, reminders and tasks

ChronoSync™

Scheduled file synchronizations and backups



Download the Demo! Read all about it!
Check it out at our web site!

econ™
TECHNOLOGIES

www.econtechologies.com

1-800-4-MEMORY

LAPTOP - DESKTOP - CAMERA

**MEMORY
WE CAN BEAT
ANY PRICE
ON ANY MEMORY
FROM ANYONE
PERIOD !!!**

SHOP FIRST, THEN CALL US

**NO RE-STOCKING FEE - MAJOR BRANDS
BRAND NEW PARTS - FREE TECH HELP**

**SPECIALS ON THE WEB
WWW.18004MEMORY.COM**



fatCOW™
WEB HOSTING

big hosting plan. simple price.

The \$99 Plan

\$99
a year

- 100MB disk space
- 100 email accounts
- 5GB monthly transfer
- Shopping Cart
- Frontpage Extensions
- CGI, PHP, MySQL
- Control Panel

Build Your Own!

Start with our \$99 Plan and add up to 500MB of disk space and/or 15GB of network transfer.

Mini Moo Plan

- Domain Name Parking
- 1 Email Account
- Coming Soon Page
- \$20 Domain Names

WWW.FATCOW.COM/ADDICT

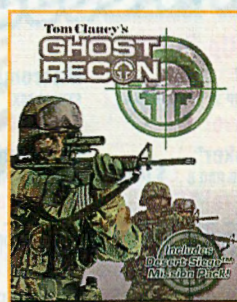
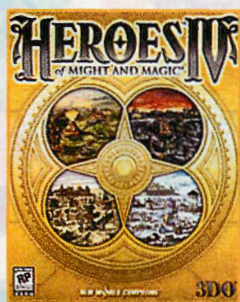
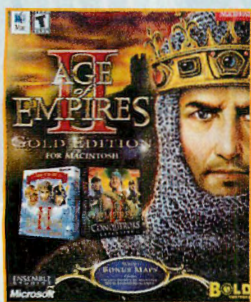
Toll Free: 1-866-517-6486

GOT MAC GAMES?

Serious savings for serious gamers.

gogamer.com

got lots of them and many more...



Get Smart

The FireWire Drive with a technician built in.



LCD Displays **S.M.A.R.T.** (Self Monitoring Analysis and Reporting Technology) for the ultimate in Reliability.

patent pending

Granite
D-I-G-I-T-A-L

Hot-Swap Tray
pulls out quickly.

Ever wondered what's really going on inside that box? With the new line of **SMART Drives** from Granite Digital, you will never have to wonder again. This FireWire IEEE1394 enclosure includes a Microprocessor and LCD display that will tell you everything you ever wanted to know about your drive's condition. It's like having your own technician built into every case. The case also monitors drive performance for speed-intensive operations like DV and AV and it helps keep your data safe and secure.

So, if you're looking for the safest place to store your data, and if you like the idea of knowing what's going on before you have a problem, then the **SMART Drive** from Granite is the drive for you.

Unlike other FireWire companies, Granite writes its own firmware and supports more drives than anyone else. Our easy to use upgrade and browser utilities keep us ahead of the competition while giving our customers the information that they need....spoil yourself and Get Smart.

Get our full color catalog online at www.granitedigital.com

Granite Digital • 3101 Whipple Rd., Union City, CA. 94587 • 510-471-6442-tel • 510-471-6267-fax

Get Hot

The Hot-Swap FireWire Drive that's affordable.



Additional
Drive Trays
are only
\$29.95



The new Granite **FireWire Hot-Swap Drive**

is one of the most versatile storage systems on the market. With the low cost of IDE hard drives you can now affordably use hard drives to backup your computer, transport large amounts of data, dedicate drives for projects, and completely eliminate the need for tape drives and other archival systems. It's the ideal solution for your removable storage needs, and it is faster than all other types of archival systems.

The key to our **FireWire Hot-Swap Drive System** is our low cost hard drive trays. These affordable trays hold low cost IDE hard drives. Both Macintosh & Windows 98SE, ME, 2000, and XP are completely supported without the need of any software or additional drivers...just plug it in and you are up and running.

SportSuit™ line of iPod cases offer rugged protection for your iPod.

Cases for all your Apple® portables. Many styles, colors & sizes available.

NEW! CEO™ line of leather cases. Elegant protection for your iPod. Also new: **Podstand™**

SportFolio™ line of laptop cases for all G4 and iBook computers, including new 17" & 12" G4 Powerbooks.

www.marware.com

954-927-6031

Save - AppleWorks Training Products

AppleWorks 6: Missing Manual ....14.99	Getting Started w/ AW Spreadsheets 19.95
AppleWorks Journal (10 issues) ....39.95	Hermira PhotoObjects .....59.95
AppleWorks Template Catalog .....5.00	MacAcademy AW 6 Videos/CDs @ 39.95
AppleWorkShop 6 for Teachers ....24.95	Macworld AppleWorks 6 Bible.....27.99
AW 6 Button Bar Wall Chart.....9.95	Mac OS X: The Missing Manual ..19.95
AW 6 Keystroke Wall Chart .....9.95	Paper Designs for AppleWorks .....29.95
Both Wall Charts .....14.95	We Use AppleWorks Banners .....9.95
AW 6 Reference Sheets (25) .....19.95	World's 100 Greatest Books CD ....39.95
AppleWorks 6 Step by Step .....19.95	1000+ Certificates for AppleWorks 29.95
Getting Started w/ AW Databases ..19.95	Macintosh Batteries .....call

- Satisfaction guaranteed or your money back. -

AppleWorks Users Group; (888) 781-AWUG; Fax: (734) 454-1965
orders@awug.org; www.awug.org

FULL VERSION SOFTWARE FOR STUDENTS, TEACHERS & SCHOOLS

ACADEMIC DISCOUNTS

You Save Up To 85% Off!

NewTek® LIGHTWAVE 3D 7.5 \$395 You Save! 75%	Adobe® PHOTOSHOP 7 CALL You Save! 52%	Macromedia® STUDIO MX \$189 You Save! 85%
FileMaker® FILEMAKER PRO 6 \$148 You Save! 50%	Microsoft® OFFICE XP PRO CALL You Save! 67%	

FREE UPS® GROUND SHIPPING
When you order online at:
MA.AcademicSuperstore.com

AcademicSuperstore.com ♦ 1-800-294-4035

iMAC 333Mhz

160MB RAM/4 GB HD/24X CD-ROM/E-NET/56K MODEM



\$429⁹⁹

1-800-673-6227

MEGA MACS.com 918-664-MACS fax (6227)
918-663-6340

Final Cut Pro 3™ \$799	FrameMaker 7.0™ \$499	Flash MX Bundle™ w/Flash 4 Full \$249	WarCraft III \$39	Soldier of Fortune II \$24	Omni Page Pro X™ \$189
AppleVideo AGP GoForceTi4600 w/ 128mb - \$269	Conflict Catcher 9™ \$64	Freehand 10.0™ \$149	Microsoft Office X Upgrade - \$179 Full ** \$249 Retail \$259	Mac OS X 1.1™ \$39 X2 Jaguar \$119 X2 Jaguar - \$89	Adobe Premiere 6.5™ \$249

CD-ROM Drives 4x HP - Plextor \$7 4x/24x Apple Int. IDE \$9/89	Optical Logitech 2 button USB Mouse \$14	LaCie FW + USB 2.0 24x10x40 \$129	Palm V Keyboard \$18 Serial Cradle \$1	HardDrives 90B/180B LVD Bundle \$99/149 540MB Quantum \$9 1GB/4GB from \$14/17 9.1GB Seagate \$89 External 4GB \$39 Adaptec 2940U2B SCSI PCI Card \$59 IDE \$69 60GB Maxtor 7200 \$79 15GB Apple 2.5" \$79 15GB Apple Ext. \$109
---	--	---	---	---

DIGITAL CAMERAS USB Kensington \$19 USB Logitech \$24 FireWire Fire-I \$99	More Competition Rio 600 32mb* \$39	PCI Cards USB 2port \$12 Firewire Sport- \$17 SMC 10/100 \$14 Asante 10/100; \$11	Pro Speakers ~ \$38	Mouseworks \$6 2 Pack \$10	Orbit USB or ADB \$15
--	---	--	-------------------------------	--------------------------------------	---------------------------------

Software Bargains Norton Utilities 4.0/6.0 \$7/14 Norton Antivirus 6.0/7.0 \$9/14 Norton Internet Security 1.0 \$14 Norton System Works 1.0 \$14 Timbuktu2000Set- \$29 Business Plan Toolkit \$39 Encyclopedia Britannica 2003 \$19 Flash 4 Freehand 9 \$139 Web Savant \$59 Office upgrades 98-/2001 \$79/249	BLOWOUT SEE WEBSITE FREE SHIPPING midiman M-AUDIO Online orders only	Used System Specials Bdgo Tower G4500/120GB/4GB/CDZ/USB/FW \$519! Bdgo Tm G3500/120GB/4GB/CDZ/USB/FW \$389! Mac OS 7.6 \$49 8.1 \$35 8.5 \$89 9.1 \$89 X.1- \$39 5500/225/2GB/32MB \$99- FREE Norton SystemWorks 1.0 (SEI) available with any CD online purchase!
---	--	---

All prices rounded down
Credit cards accepted

WE BUY MACS!
We stock many parts!

Check out our online clearance deals!



Bob, save us all some time & money!
GET ORGANIZED! ☺ Kay

Cumulus®

The most popular digital asset management tool for creative professionals.
Manage & publish all your images, presentations, videos, MP3s and text with Cumulus 5.5.

www.canto.com Canto

The TransPod

All-in-one car solution for the iPod®

Works with all iPod models!

- Auto mounting system
- FireWire™ autocharger
- FM transmitter



dlo DIGITAL LIFESTYLE OUTFITTERS

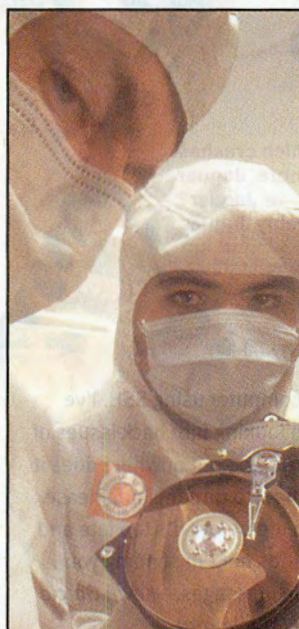
Order by phone: 1.866.800.iPOD or visit

everythingipod.com

The Number One Source for iPod Accessories

DATA RECOVERY: 800-440-1904

7 great reasons to choose DriveSavers:



- Fastest, most successful data recovery service.
- Recommended by all hard drive companies.
- Advanced, proprietary techniques.
- 24-hour and weekend services available.
- Instantly retrieve recovered data with DATAEXPRESS™.
- Featured on CNN, BBC, MacWorld, MacAddict, and many others.
- Government Contracts.



"We Can Save It!"

Visit DriveSavers at www.drivesavers.com

©2002 DRIVESAVERS, INC. 400 BEL MARIN KEYS BLVD., NOVATO, CA 94949 INTL: 415-382-2000

DESKMOUNT

Get down off the desk



Get up off the floor

**MARATHON
COMPUTER**

www.marathoncomputer.com
info@marathoncomputer.com

800.832.6326
615.367.6467

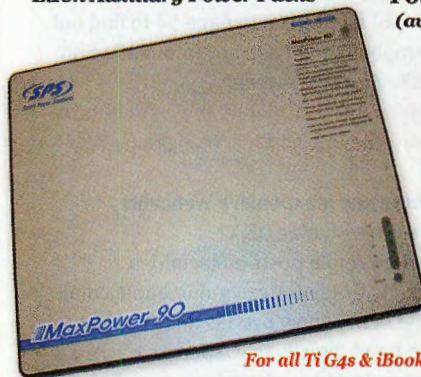
LIND

Your Essential Source

Power Accessories *for* Mobile Computing

**MaxPower 60(95WH)
& MaxPower 90(140WH)
LiIon Auxiliary Power Packs**

**Auto/Air Power Adapters
for
PowerBook G4s & iBooks
(available at the Apple Stores)**



For all Ti G4s & iBooks

Extend your runtime up to 3 to 4 times longer
Lightweight - 11.25 x 8.5 x .5"
Includes AC adapter and connection cables

Lind adapters feature:
Fault protection circuitry
with Automatic reset
Durable ABS housing
Nylon carrying case

Order online at:
www.lindelectronics.com
or call #800-897-8994 to order

Lind Electronics, Inc. 6414 Cambridge Street, Minneapolis, MN 55426 #952-927-6303

LETTERS

JAGUAR VERSUS JAGUAR

I was driving on the highway when I saw a Jaguar (as in the car). It was nice, but I still think my Jaguar OS is better. As I drove off, I wondered which Jaguar crashes more often.

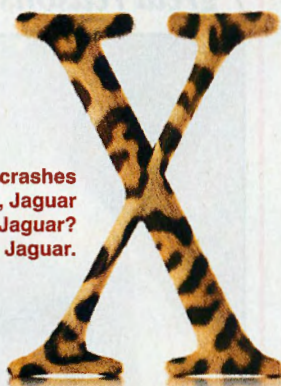
—Sandy Lockhart

Hmm, that's a toss-up. According to the Insurance Institute for Highway Safety, the Jaguar S-Type series has a collision claim frequency of 94, which is 6 percent better than the average for all 297 passenger vehicles tested. You're probably pretty safe with either Jaguar.—Max

SSH! HE'S LISTENING

I'm a simple 13-year-old Mac user, but my evil 15-year-old brother is a Mac wiz. He took my new iBook and wrote some stuff into the Terminal. I could only distinguish the letters SSH (secure shell). Now every time I log onto my Mac, Remote Login is on so my brother can get into

Which crashes more, Jaguar or Jaguar? Probably Jaguar.



my computer using SSH. I've tried looking into back issues of *MacAddict*, but nowhere does it say how to turn this off. Please help me before it's too late and he finds out I'm sending you email messages.—Kevin Garcia (aka Squeleton)

Alas, this story has a sad ending. We tried to contact young Kevin to help, but he went intocommunicado. We fear the worst. Squeleton! If you're out there, write back!—Max

HEAR ME ROAR

I love your magazine, but often the only female faces I see are those of your staff members and the models in the



PHOTOGRAPH COURTESY OF FORD MOTOR COMPANY

advertisements. It wouldn't hurt you to include women in some of your features.—Sharon Solomon

Since 62.5 percent of the *MacAddict* editorial staff are women, we should be able to come up with something. In the meantime, our February 2003 "Best and Worst" article *did* mention Oprah.—Max

FROM THE HORSE'S MOUTH

In your article "IBM Chip Tempts Apple" (*Get Info*, Feb/03, p12), you state, "Motorola has been the sole supplier of top-end Apple microprocessors since 1984." That's not the case. IBM supplied the original 601 and many (if not most) of Apple's high-end processors until at least 1995 or 1996. IBM also supplied

all of Power Computing's high-end microprocessors. Were your statement true, I could have spent a lot more time in sunny Austin, Texas, and a lot less time in frigid Burlington, Vermont.—Jon Fitch, "Father of the PowerMac"

Yikes! You're exactly right. We repressed our memories of the days when Michael Spindler and Gil Amelio haunted the halls of Cupertino. Oh, and thanks for

designing the original Power Mac and scaring the bejesus out of Apple with your killer work at the late lamented Power Computing.—Max

A STAR IS BORN

Great movie, Roxanne (*Inside the New Power Mac G4*, Dec/02, on the Disc). You did an awesome job of showing off the insides of that new Power Mac G4,



What fifteen-year-old wouldn't relish the opportunity to dissect high-end hardware?

especially the PRAM battery. It makes me want to go out and buy one!—Andy Hoffman

Great, now she's going to want to renegotiate her zero-compensation contract.—Max

DUMB BUG OR BUGDOM?

You guys need more games on the Disc. A single cheesy game just doesn't cut it. Not all of us are interested in a game about

WORLDWIDE WHOOPS

February 2003's *Quick Tips* (p6) referred us to page 54 to find out how to revive an old Webcam, but I don't see any information on Webcams there. What gives?—Chris Eschweiler

That Q&A from February 2003's *Ask Us* (p54) hit the cutting-room floor at the last minute. Here's the info you're looking for.—Max



Are there any inexpensive Webcams that work with Mac OS X?

Although Apple posts a Macintosh Products Guide (<http://guide.apple.com>), people in the know bypass this list and head directly to iOXperts (www.ioxperts.com), where for a mere \$19.95 you can buy USB and FireWire drivers that work with tons of Webcams, including most Windows-compatible cameras.

The Pyro 1394 spies with iOXperts' OS X FireWire driver.

WRITE TO US!

MacAddict, 150 North Hill Dr.,
Brisbane, CA 94005
or letters@macaddict.com

FOR CD PROBLEMS:
go to www.futurenetworkusa.com

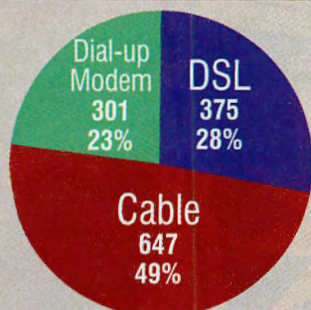
FOR SUBSCRIPTION QUERIES:
call (toll-free) 888-771-6222

LOG OUT 95

SURVEY SAYS

Here's How You Responded to Our Online Poll

How do you connect to the Internet?



1,323 respondents

a pitiful little bug trying to find his backpack!—*TJGuitar*
Cruel, cruel TJ is referring to the game Bugdom 2, featured on our January 2003 Disc. (We assume bloodthirsty TJGuitar was happier when our February Disc gave him Tom Clancy's Ghost Recon and Jedi Knight II: Jedi Outcast.)—*Max*

GROSSED OUT BY GAMES

Is this MacGames or what? I really don't care for the endless reviews of games because they don't suit my purpose in subscribing to MacAddict. I am addicted to the Mac, not just the games. It seems like the staff is too busy being impressed and entertained by GAMES!?!#@—*Rick Little*
Hang on a sec, Rick. I'm just about to frag this...wait...whoa...argh...Sorry, I'll have to get back to you.—*Max*

ELEMENTARY, MY DEAR TOKUDA

In Shareware Pick of the Month (Get Info,

Feb/03, p19), Andrew Tokuda wrote that you could click in an element's window to view its molecular structure when using Atomic Mac. How can an element have a molecular structure? Did he mean atomic structure?—*Diana Beatty*
Our bad. A Chem 101 acid experiment caused us to forget *many* things.—*Max*

LUCKY GUESS!

MacAddict's Books of Luck Contest Winner
Congratulations to Tim Ankcorn for winning MacAddict's Books of Luck Contest (Log Out, Dec/02, p95), where we challenged readers to guess the number of pages in an unmarked stack of books. Tim's guess of 7,768 pages was the closest we received. The correct answer was 7,804 pages, a mere 36 pages off!

That's close, suspiciously close.
So come clean, Tim, how *did* you break into the vault containing the secret stack of books?

MacAddict READER POLL

Q Which video-editing software do you use?

- Apple iMovie
- Apple Final Cut Express
- Apple Final Cut Pro
- Adobe Premiere
- Avid Xpress DV
- Other

To vote, click Reader Poll at www.macaddict.com before March 10, 2003. See the June 2003 issue for the results. Check www.macaddict.com for a new poll each month.

YOUR TRUE COLORS CONTEST

Win an Epson Stylus Photo 960

A photograph is a complex tapestry of color, form, and feeling. So are you, dear reader. Take a picture that shows your true colors, be it a self-portrait, a favorite hideaway, or a photo-realistic symbol of the artist formerly known as you. There are two requirements: 1. The picture must be taken with a camera, and 2. The picture must remind you of you.

If we like your picture best, you'll win an Epson Stylus Photo 960 six-color photo printer (\$349, www.epson.com).

Deadline for entry:

April 30, 2003.

Contest results will appear in the Aug/03 issue.



This six-color photo printer could be yours.

YOUR TRUE COLORS

Tell us in 25 words or less why this image represents your true colors.

Photographs should be 4 by 6 inches in size. Digital images should be 4 by 6 inches in size and 300 dpi. Limited to one entry per contestant.

CONTESTANT INFORMATION

Full Name:

Address:

City:

State:

Zip:

Email or telephone:

Send email entries to: contest@macaddict.com
Subject: Your True Colors

Send snail-mail entries to:

Your True Colors Contest
MacAddict magazine, 150 North Hill Dr.,
Brisbane, CA 94005

Deadline for entry: April 30, 2003

Contest Rules

The judges will be MacAddict editors, and they will base their decision on the following equally weighted criteria: 50 percent creativity and 50 percent quality of execution. All entries must be received no later than April 30, 2003, with the winner announced on or around August 2003. By entering this contest, you agree that Future Network USA may use your name, likeness, and Web site for promotional purposes without further payment. All prizes will be awarded and no minimum number of entries is required. Prizes won by minors will be awarded to their parents or legal guardians. Future Network USA is not responsible for damages or expenses the winners might incur as a result of this contest or the receipt of a prize, and winners are responsible for income taxes based on the value of the prize received. A list of winners may also be obtained by sending a stamped, self-addressed envelope to Future Network USA c/o MacAddict Contest, 150 North Hill Dr., Brisbane, CA 94005. This contest is limited to residents of the United States. No purchase necessary; void in Arizona, Maryland, Vermont, Puerto Rico, and where prohibited by law.

NEXT MONTH THE WONDERFUL WORLD OF WIRELESS

It's time to yank the cables from your Mac, PDA, phone, and printer. Plus: The first hands-on testing of AirPort Extreme—is it really five times faster than AirPort?

GOT GAME? GET MORE!

Cheats, mods, levels, skins, tips, tricks, and more—there's a lot you can do to spice up your games. Whether you're a newbie or addict, we show you how.

DAVID LYNCH: WILD AT HEART

Eraserhead, Blue Velvet, Dune, Twin Peaks, Mulholland Drive—our exclusive interview reveals how David Lynch uses Macs to express his twisted worldview.

SENSORY OVERLOAD

Rejected Ambient Sensor Proposals for Apple's 17-Inch PowerBook

The smarter a PowerBook gets, the fewer things we humans need to worry about. The ambient light sensor that controls the new 17-inch PowerBook's beautiful backlit keyboard, however, is but one of many ideas explored in Apple's secret labs. Here are a few others that had less-than-happy endings, and why they were ultimately thrown—rather violently, we might add—back to the drawing board.

Critical-Need Sensor

By measuring the relative temperature of your fingertips as you type, this technology senses when you are pressed for time and/or are excessively stressed, and then quits applications, creates inexplicable error messages, and automatically shuts down your Mac.

Reason for rejection This effect was discovered to exist already without requiring its own dedicated technology.

Get-Over-It-Already Sensor

This sensor was developed in the hopes of liberating Webmasters forced to moderate the self-righteous ranting of Web denizens who need to get a life. If a user remains on an opinion forum for more than one hour, types the same complaint more than ten times, or drools on his or her keyboard for any reason, a giant, electric-green, flashing, siren-enhanced dialog appears that reads, in all caps, "YOU ARE A LOSER. GET OVER IT ALREADY AND GO ON A DATE, FOR CHRISSAKES!"

Reason for rejection Geeky developers had to abandon work on this sensor early on in the testing cycle due to plummeting self-esteem.

Ambient Food-in-Keyboard Sensor

Inspired by the popular board game Perfection, this sensor detects food lodged beneath and between keys on

your keyboard. At lower levels of gunkification, the key most impacted by consumables pops off, allowing you to clean. If the total amount of food exceeds 4 ounces, however, the entire keyboard pops up and, in an explosion of laser-etched key caps and last year's bologna, sends both keys and crumbs a-flyin'.

Reason for rejection Unnerving element of surprise caused myocardial infarctions in several cholesterol-challenged test subjects.

Retinal-Longevity Sensor

This technology flashes a "look away" warning onscreen if it senses that you haven't blinked in 15 minutes. Apple engineers discovered that among the images that made users immediately avert their eyes, the most effective was the Political Indignities Collection: an unwaxed former Secretary of State Madeline Albright in a Brazilian-cut bikini, Vice President Dick Cheney in camouflage thong underwear on a Kuwaiti beach, and former Prime Minister Margaret Thatcher naked on a cold day.

Reason for rejection Cheney threatened to sue, claiming the underwear that Apple

Can we get that soprano sax made in an aluminum alloy to match?

Photoshopped on him "made my butt look as big as the Capitol dome."

Aural-Integrity Sensor

This sensor identifies CDs you insert into your Mac and categorizes them into one of three categories: OK, Crap, and Whoever Made This Should Be Shot. Music labeled as OK plays normally, and Crap is ejected unplayed. However, music in the WMTSBS category (including *Phantom of the Opera* remixes, mass-produced kiddie pop, and Luxembourgian patho-goregrind metal) causes the drive to perform a disc meltdown "for your own good."

Reason for rejection In a trial run using Kenny G's *The Moment* CD, the test Mac combusted instantly, singeing the eyebrows of the hapless developer who had inserted the offending pabulum. Further testing was thought to be unsafe.



BUY 1, GET 4 FREE*

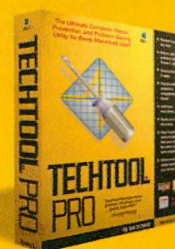


*Purchase one full copy of TechTool® Pro 3 or Drive 10™ and get a free upgrade to TechTool Pro 4 when it ships this spring! See details below.

TTP: 4 TECHTOOL PRO 4



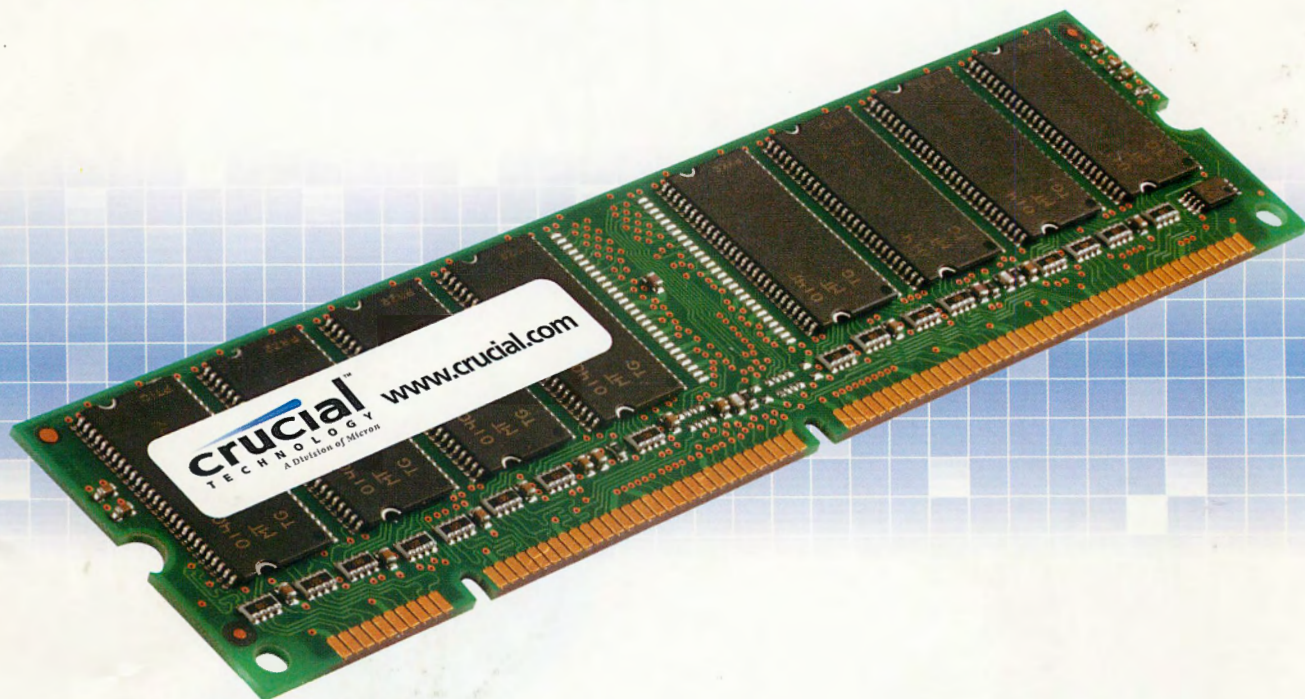
Offer expires May 31, 2003.
Only available on specially marked packages.
Promotional offers cannot be combined. Void where prohibited.



Micromat Inc. 800-829-6227 707-566-3831 info@micromat.com www.micromat.com

©2003 Micromat, Inc. All rights reserved. TechTool is a registered trademark of Micromat, Inc. Drive 10 is a trademark of Micromat, Inc.

The world's leading computer companies buy memory from us.



Shouldn't you?

When you buy a memory upgrade from Crucial you're buying directly from Micron—one of the world's largest DRAM manufacturers and a major supplier to the global computing industry. Buying directly from the manufacturer gives you access to the highest quality products at the lowest possible prices, backed up by expert technical support and world-class customer service, and topped off with guaranteed compatibility and a limited lifetime warranty. It's that simple.

Order today and we'll ship it free!*

256MB PC100 SDRAM

\$53⁹⁹

for today's most popular systems

FREE SHIPPING*



Order online:
www.crucial.com
or call toll-free 1-888-363-2562

crucial
TECHNOLOGY
A Division of Micron
The Memory ExpertsSM

*See Web site for details.

Prices may vary according to specific system requirements. The price listed was valid on 1/31/03 when we sent this ad to the publisher; however, prices may have dramatically increased or decreased since then. Visit the FAQ section of Crucial.com to learn more about why memory prices go up and down.

© 2003 Micron Technology, Inc. All rights reserved. Micron Technology, Inc., is an authorized licensee of the CompactFlash™ and MultiMediaCard™ trademarks. The Memory Experts is a service mark and Crucial Technology, the Crucial logo and Micron are registered trademarks of Micron Technology, Inc. All other brands and names used herein are the property of their respective owners. Crucial Technology is a division of Micron Semiconductor Products, Inc., which is a wholly owned subsidiary of Micron Technology, Inc. Phone 208-363-5500. Fax 208-363-5501. E-mail crucial.sales@micron.com. Crucial Technology is not responsible for omissions or errors in typography or photography.